

FORMERLY

# Western MANUFACTURING

NOV 1961



## FEATURING

Power purser cleans Otis Elevator plant floors. See Maintenance Report.

Plant Maintenance & Engineering Report 29

Western Plant Maintenance & Engineering Show 49

Handling & Positioning Heavy Loads for Assembly 59

Special Manuals on Cleaning & Coatings 84

# Yes

The man wearing glasses has a question: "Is flame hardening an effective way to develop high surface hardness in Jorgensen J-45 plate?" The man in the coat knows. As a metallurgical engineer, his knowledge is as broad as Jorgensen's stocks are broad. That's why he can help with your specification problems. He has the answers.



*For steel and aluminum—Call Jorgensen First!*

**EARLE M. JORGENSEN CO.**

LOS ANGELES • OAKLAND • SAN FRANCISCO • SEATTLE • SAN DIEGO  
PHOENIX • HOUSTON • DALLAS • TULSA • WICHITA • DENVER • HONOLULU







# HYSTER

**NOW**  
**monotrol Control**  
**Automatic 2-Speed Hoist**

HYSTER

HYSTER

**The pace-setting combination  
 that boosts production 20% —**

*Only*  
**HYSTER® has it!**

**NEW HYSTER SPACESAVER cushion tire trucks of 6-7-8-10,000 lbs. capacity** give you a combination of production features never before offered in *any* lift truck.

**MONOTROL CONTROL**—Completely foot controlled Hystamatic transmission—for easy, natural driver control; safe, rapid handling; highest production.

**TWO-SPEED HOIST**—Fully automatic system for fast lift with full load—double speed with partial loads.

**FULL FLOW—FULL TIME HYDRAULIC FILTER**—eliminates down-time caused by dirty hydraulic oil. Cuts maintenance costs.

Ask your Hyster dealer to demonstrate these and other exclusive features that set the engineering pace for *all* lift trucks. Call him soon or write for literature.

**EUREKA**  
 Hyster Company  
 1303 Albee St., Hillside 2-5019

**FRESNO**  
 Hyster Company  
 2643 Church, ADams 7-9113

**LOS ANGELES**  
 Hyster Company  
 2425 S. Garfield Ave., RA 3-6255

**SACRAMENTO**  
 Hyster Company  
 2340 Auburn Blvd., IV 3-5528

**SAN DIEGO**  
 Hyster Company  
 1169 16th St., BElmont 9-4343

**SAN FRANCISCO**  
 Hyster Company  
 151 Mitchell Ave., PO 1-1600  
 South San Francisco

**BOISE**  
 Hyster Sales Company  
 612 Main Street, 3-5441

**MEDFORD**  
 Hyster Sales Company  
 654 S. Grape St., SPring 3-6360

**PORTLAND**  
 Hyster Sales Company  
 5251 S. E. McLoughlin, BE 4-6471

**SEATTLE**  
 Hyster Company  
 5930 First Ave., South, PA 5-0200

**SPOKANE**  
 Hyster Company  
 1107 Freya St. North, KE 4-8038

**YAKIMA**  
 Hyster Company  
 1220 S. 1st Street, GL 3-7263

... for more details, circle No. 12 on Reader Service Postcard

WESTERN MANUFACTURING/JUNE 1961

3

... for more details, adv. opp. pg., circle No. 11 on Reader Service Postcard

# Western MANUFACTURING

**JUNE 1961**

VOL 26 NO. 6

## CONTENTS

### SPECIAL REPORT (cover story)

- 29 Plant maintenance & engineering  
49 Western plant maintenance & engineering show  
84 Special manuals on cleaning & coatings  
59 Handling & positioning heavy loads for assembly  
61 Foil shearing, accuracy achieved by new production method  
63 Fluid drive solves power load problem  
66 Furnace development permits fast, uniform heat  
68 Plant lunches from vending machines  
69 Assembly photographs save time, reduce mistakes

### MATERIAL HANDLING

#### METALS

#### POWER

#### DESIGN

#### MANAGEMENT

#### PRODUCTION

### COVER PHOTO

*MAINTENANCE MAN sweeps aisles at Otis Elevator, Los Angeles, Calif. plant, using power sweeper that cleans a 48-in. swarth. Operation requires under one hour. For story see Maintenance Report, page 29.*

### DEPARTMENTS

- 5 EDITORIAL  
11 NEWS OF MEETINGS  
14 CALENDAR OF WESTERN MEETINGS  
72 HELPFUL LITERATURE  
76 ADVERTISED LITERATURE  
84 SPECIAL MANUALS  
90 NEW EQUIPMENT  
97 WESTERN MANUFACTURING NEWS  
124 WESTERNERS AT WORK  
126 INDEX TO ADVERTISERS

WESTERN MANUFACTURING publishes a Southwest Zoned Edition which goes to readers in Southern California, Arizona and Nevada. Any gap in page numbering is due to differences between the Southwest edition and the regular edition.

READ BY PRODUCTION ENGINEERING AND PURCHASING MANAGEMENT OF MANUFACTURING AND PROCESSING PLANTS IN THE 13 WESTERN STATES

Published monthly by

**KING PUBLICATIONS**  
609 Mission Street  
San Francisco 5, Calif.  
Phone YUkon 3-4343

**Los Angeles Office**  
The Plin Room Building  
1417 Georgia St.  
Los Angeles 15, Calif.  
Phone Richmond 9-3278

### Editorial

**EDITOR**  
Murel Boyle  
**NEWS EDITOR**  
Peggy V. Kopmann  
**SOUTHERN CALIFORNIA EDITOR, Los Angeles**  
William H. Durfee  
**News Correspondents**  
Lowell Richards, Seattle  
John Denny, Portland  
Brad Walsh, Phoenix  
Ernest Felt, Denver  
Regina M. Stadler, San Diego  
Jerome F. Sheldon, Alaska  
George Mason, Hawaii

### Business

**PUBLISHER**  
Robert C. Johnson  
**PRODUCTION MANAGER**  
Robert Anderson  
**CIRCULATION MANAGER**  
C. J. Proffinger  
**PROMOTION MANAGER**  
Joanna Sutter

### Advertising

**DISTRICT MANAGER**  
James J. Elliott  
Phone RI 9-3278  
**MIDWEST MANAGER**  
Robert A. Sturm  
247 Beach Rd.  
Glencoe, Ill.  
VE 5-4229  
**EASTERN MANAGER**  
Donald J. Streep  
180 Jefferson Ave.  
Trenton, New Jersey  
LO 5-1523

### Administrative

James I. Billard . . . President  
L. P. Vratas . . . Vice President  
and General Manager  
Robert C. Johnson . . . Vice President  
Subscription rate: \$10.00 per year. Single Copy: \$1.00.  
Accepted as Controlled Circulation Publication at Glencoe, Illinois.  
Postmaster: Please send notice of change of address to Western Manufacturing, 609 Mission Street, San Francisco 5, California. For change of address, write Circulation Dept., 609 Mission St., San Francisco 5, Calif.  
Copyright 1961, King Publications. Western Manufacturing is a continuation of Western Industry.

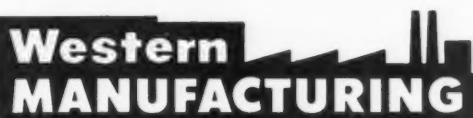


## AN EDITORIAL



# HAS CHANGED ITS NAME

... it's now



**W**ESTERN INDUSTRY has changed its name to WESTERN MANUFACTURING, effective with this June issue. In doing so it follows the lead of other well-established business publications who have sought closer identification with their fields. We also have changed our trademark from the familiar ellipse to a more definitive plant silhouette. Other changes have been made in our graphic presentation to increase readability.

A prospective reader should know by its title when he picks up a business publication whether its contents are directed to him and to his interests. WESTERN MANUFACTURING has been selected as the new name to define the publication's editorial content more accurately to its readers.

WESTERN MANUFACTURING goes to manufacturing plants in the 13 Western States. It concerns itself with in-plant operations and with the latest developments in western plants in research, design, material and component selection, production, material handling, packaging, maintenance, power and power transmission, communications and safety. Our editors spend full days in western manufacturing plants searching for the new or un-

usual machine, equipment or method which cuts costs or solves western production or engineering problems.

We think of "manufacturing" in its broader sense, as does the National Association of Manufacturers and the Department of Commerce in its periodic Census of Manufactures, to embrace not only the manufacturers of finished products, but fabricating and processing plants as well.

Our editorial objectives remain the same. They are to serve you, the reader, as you are concerned with plant administration, production, engineering, or purchasing. Our job is to tell you how you can operate a plant more efficiently and produce more profitably under the distinctive conditions inherent in western manufacturing. We shall continue to accomplish this with in-plant developed and staff-written feature articles, and by providing you with carefully selected information on new equipment and new literature.

We also will continue to keep you informed of significant news about western plants, people, meetings and other activities of interest to the Fraternity of Western Manufacturing.



ONE OF A SERIES OF CHATS ABOUT  
CONSERVATION AND CONTROL OF HEAT

# SARCO TOPICS

## SO YOU THINK YOU'VE GOT TEMPERATURE CONTROL PROBLEMS

When plant men get together and talk about their temperature control problems, strong men may weep. It's so darned basic—that narrow range of degrees which must be maintained—so closely allied to profit and loss. Let us tell you about one situation that may even top yours, and may clue you in on a good solution. It concerns wine, of all things.

Take those basic temperatures. Wine must be pasteurized at 140°F. Those are the facts of life in the world of wine. They might not seem too difficult to live with unless you are concerned with heat. Then you probably know how tough things can get when you have a rendezvous with a thermometer.

Take New York's Monarch Wine Company, producers of Manischewitz Wines. Their Problem: how to maintain the 140° temperature in the heat exchangers despite wide variations in the rate of wine flow. These variations, between 5 to 60 gallons per minute, result from slowdowns and recoveries in the bottling process. Problem: entire system must be capable of complete shutdown when necessary. Problem: wine temperatures must be raised to 140° as rapidly as possible, sometimes an immediate jump of 100°.

Attracted perhaps by aspects of the situation that had little to do with pure science, Sarco engineers applied the collective experience of Sarco technology to the solution

of this serious problem. The result for Monarch: the *degree of control* the process demanded—achieved through the excellent use of Sarco Temperature-Pressure Regulators, Float Thermostatic Steam Traps, Thermo-Dynamic Steam Traps, and Pipeline Strainers.

Sarco engineers, ever resourceful, divided each of the two large Cherry-Burrell plate-type heat exchanger units into two separate



sections with a blank baffle plate, each with a separate Sarco control. Thermal sensing bulbs were installed in wine discharge and throttling controls hooked into steam supply. As demand fluctuates, one or both regulators function to maintain the 140° temperature. In higher demand, both regulators are operative; as demand drops and flow decreases, only one regulator supplies steam. Pasteur himself would have been elated.

Each of six smaller capacity shell-and-tube heat exchangers required only one regulator, with the sensing bulb inserted into the outlet side of the wine filled shell, and the regulator throttling steam supply to the tube section. Thus, by controlling flow of steam to the exchangers on the basis of pressure and temperature, the Sarco regulators were able to maintain the temperature of the wine at precisely 140° regardless of fluctuations in demand or supply rate. Whew! A lot of engineering went into those two sentences.

From here on it's downhill. To secure complete cut off of the steam supply during scheduled shutdowns of the bottling run, solenoid valves were provided to supplement normal modulating action of the controls. To discharge widely varying loads of condensate continuously and remove immediately all air and incondensable gases, Sarco Float Thermostatic Steam Traps were installed on all condensate outlets. On the drips before each control valve a Sarco Thermo-Dynamic Steam Trap was installed to insure delivery of dry steam. Sarco

Pipeline Strainers were installed before all steam traps and valves to protect them against damage by any foreign bodies. And thus ends a classic story of the grape.

Still, this story has been condensed far too much, really, and we feel you've been cheated out of the story's more delicious details. You needn't be, however. We've printed the facts in detail for posterity and you in Sarco Case History 185, complete with drawings that practically make it a do-it-yourself kit. If you would like a copy, we will be flattered to receive your request, and dispatch it with dispatch.

## OUT WEST WITH SARCO

Sarco did not arrive by covered wagon, but we've been westerners long enough to wear a ten gallon hat comfortably, and to have Sarco representatives in 12 western cities. This means your problems of conserving and regulating heat can get the full Sarco treatment. No room for addresses or phones here, but the list of cities and organizations to call follows:

Alaska, Anchorage, Alaska Trade Supply, Inc.; Arizona, Scottsdale,



A. C. Baechlin Co.; California, Los Angeles, T. H. Creears Corp.; San Francisco, Sarco Company, Inc.; Colorado, Denver, Equipment Specialties Co.; Idaho, Boise, Mechanical Equipment & Engineering Inc.; Montana, Billings, Lefler Engineering Sales; New Mexico, Albuquerque, Technical Service Co.; Oregon, Portland, R. H. Brown & Co.; Utah, Salt Lake City, Gritton & Wilde; Washington, Seattle, E. H. Norton Co.; Spokane, John L. Harvey Co.

## ANYONE FOR KEY CHAINS?

Need a key chain? A tiny replica of a Sarco Thermo-Dynamic Steam Trap, Type TD-50 is attached but you can always remove it if you find it too commercial. There are many things you could use these chains for. Fishing sinkers? Lengthening a light cord? Even holding keys? Anyway, if your Sarco representative is out, write in.

Pardon our monopolizing the conversation in this series of paid communiques, but we're trying our best to interest you in certain subjects that concern us both—to the point where you'll communicate.



SARCO COMPANY, INC.  
635 MADISON AVENUE, NEW YORK 22, N. Y.  
PLANT, BETHLEHEM, PA.  
STEAM TRAPS • TEMPERATURE CONTROLLERS  
STRAINERS • HEATING SPECIALTIES

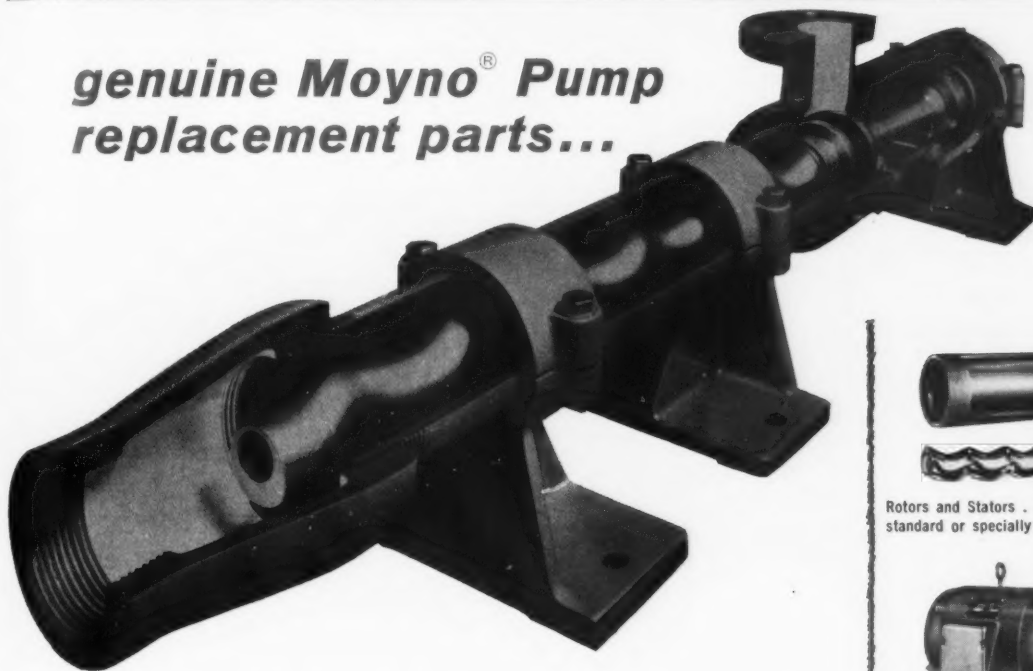
... for more details, circle No. 13 on Reader Service Postcard

WESTERN MANUFACTURING/JUNE 1961



# immediate delivery!

***genuine Moyno® Pump  
replacement parts...***



***All parts...All sizes in stock at Los Angeles***

On-the-spot factory application and service consultation and a complete stock of genuine Moyno Pump parts are now available in Los Angeles. These replacements are precision-manufactured to the high standards of original Moyno components. By always specifying *genuine* Moyno parts and accessories, you can make certain your units continue to perform with maximum efficiency and economy.

Besides immediate parts delivery and prompt local factory service, Moyno Pump Division at Los Angeles offers a complete line of Moynos in capacities to 500 GPM and pressures to 1000 PSI. Moynos successfully handle hundreds of different materials—watery slurries, non-pourable abrasives, corrosives, or suspended solids up to 1 1/8" dia.

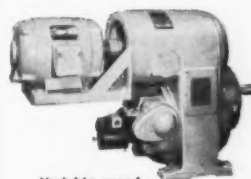
Your Moyno sales engineer's wide application experience qualifies him to make recommendations for your particular problem. On the West Coast he can be reached in Los Angeles, San Francisco, Portland and Seattle. *Call on him—there's no obligation!*



Rotors and Stators . . . available in standard or specially resistant materials



Robbins & Myers motors . . . available in a wide horsepower range



Variable speed drives and gear reducers



Belts, pulleys, guards and bases



**MOYNO® PUMP DIVISION  
ROBBINS & MYERS, INC.**

7755 PARAMOUNT PLACE, PICO RIVERA, CALIF.  
PHONE RAYmond 3-9269

... for more details, circle No. 14 on Reader Service Postcard

# POWELL MAKES IT A SIMPLE MATTER

To find the right valve, just call Powell. It's that simple, since Powell offers the world's largest variety of industrial valves for virtually any flow control problem . . . such as handling water, oil, gas, air, steam and corrosive fluids.

What's more, you don't have to wonder about Powell

performance. It's built-in through sound engineering, development, materials and workmanship.

So, remember, finding the right valve can be a simple matter when you specify Powell Valves. For further information, call your nearby Powell Valve Distributor (there's one in every major city), or write us direct.



125-pound Bronze Gate Valve—Fig. 2700. Union bonnet. Inside screw rising stem. Sizes, 1/4" through 3". In certain sizes these valves are furnished with either solid or double wedge. Seats are integral with the body.



200-pound W.P. Full Flow "WS" Bronze Globe Valve—Fig. 2608. Nominal pipe size seat opening, high lift of disc, generous flow areas make possible practically full flow. Hardened stainless steel disc and seat. Sizes, 1/4" through 3". Angle and 300-pound valves available.



200-pound W.P. Bronze Gate Valve—Fig. 375. Inside screw rising stem. Union bonnet. Renewable, interchangeable solid or double nickel-bronze wedge. Sizes, 1/4" through 3".



125-pound Iron Body Bronze Mounted Gate Valve—Fig. 1793. Bolted flanged bonnet. Outside screw rising stem and yoke. Fully guided solid wedge. Sizes, 2" through 30". Can also be supplied in all iron.

*115th year of manufacturing industrial valves for the free world*

## POWELL DEPENDABLE VALVES

THE WM. POWELL COMPANY CINCINNATI 22, OHIO

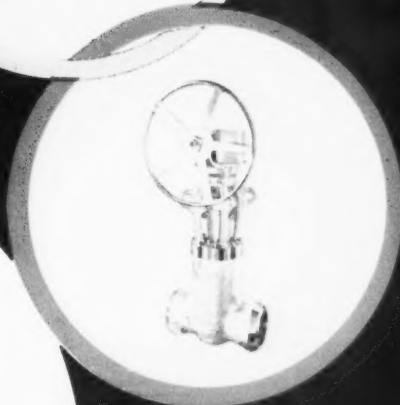
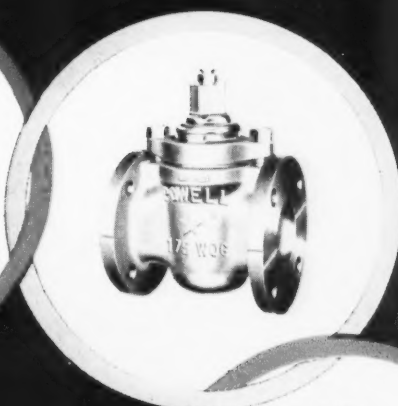
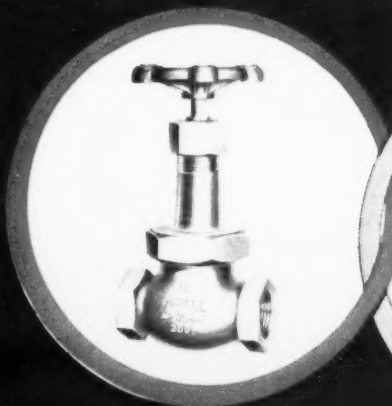


... for more details, circle No. 15 on Reader Service Postcard

WESTERN MANUFACTURING/JUNE 1961

*Specify . . .*

## **POWELL VALVES!**



**Call . . . ALLIED SUPPLY  
for the**

**COMPLETE LINE OF POWELL  
VALVES!**

**Bronze, Iron, Carbon Steel & Alloy Steel Valves**

The Powell Line includes Gate, Globe, Angle, Check, "Y", Relief, Flush Bottom Tank, Lubricated Plug Valves, etc. They are designed to meet the most rigid specifications in the Chemical & Process Industries, Missile and Rocket Industries and Petro-Chemical Field.

**REMEMBER . . . Allied is your COMPLETE LINE  
Powell Distributor!**

Ask one of our Sales Engineers to assist you in  
selection and specifications.

**Write for Free Literature!**

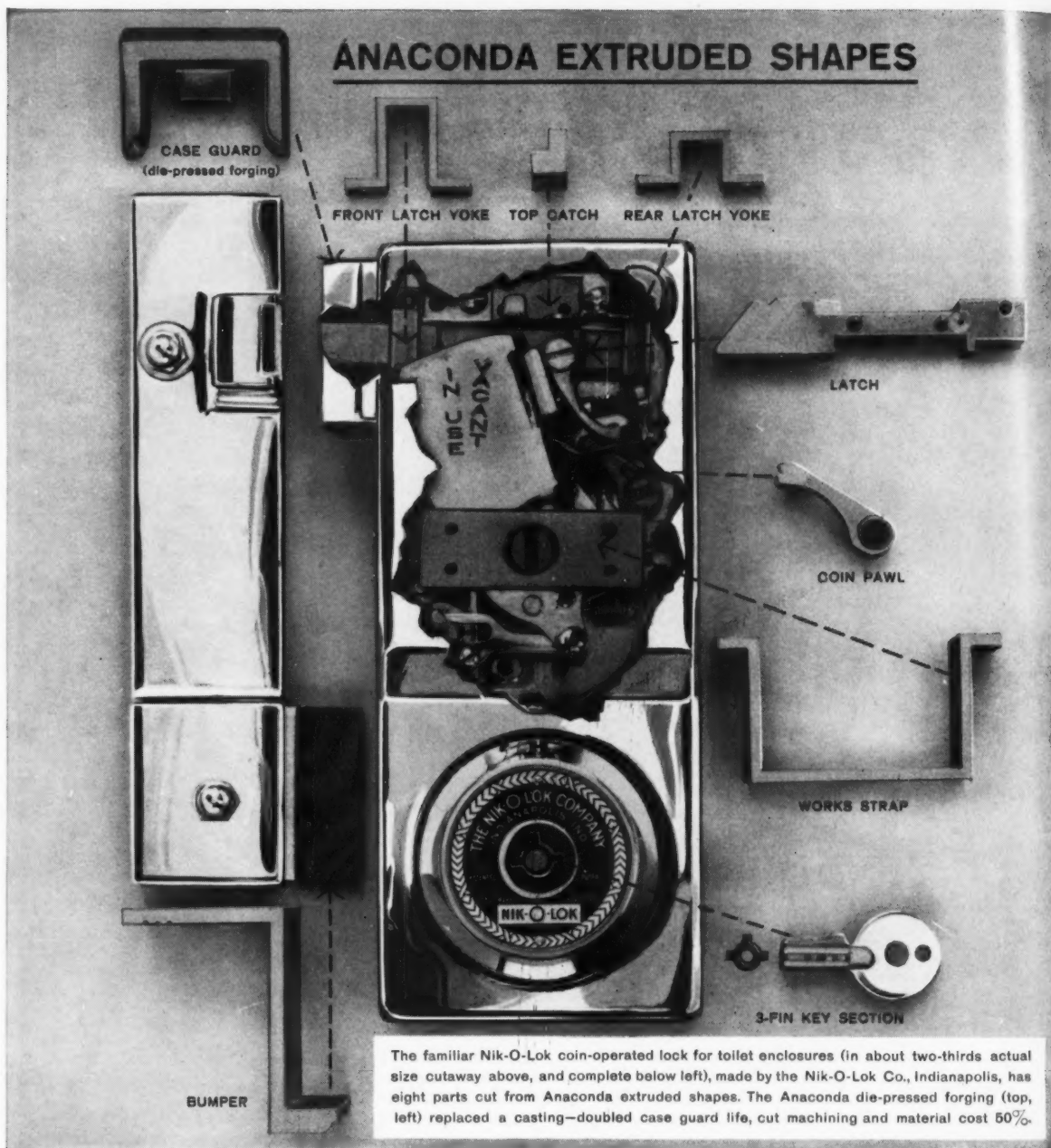
**Telephone  
LUdlow  
3-3261**

# **A**

# **LLIED SUPPLY CO.**

**4240 SANTA ANA STREET, SOUTH GATE, CALIFORNIA**

*. . . for more details, circle No. 16 on Reader Service Postcard*



The familiar Nik-O-Lok coin-operated lock for toilet enclosures (in about two-thirds actual size cutaway above, and complete below left), made by the Nik-O-Lok Co., Indianapolis, has eight parts cut from Anaconda extruded shapes. The Anaconda die-pressed forging (top, left) replaced a casting—doubled case guard life, cut machining and material cost 50%.



## How parts sliced from long lengths of "premachined" brass shapes cut costs.

It starts in design. You select cross sections which minimize subsequent machining—and scrap. The only limitation is that grooves, slots, etc., must parallel the axis of the extruded bar. The smooth surface of extruded shapes reduces many finishing operations. And high dimensional accuracy simplifies assembly. In addition, you get superior, long-wearing parts that improve the quality of your product, because of the strong, homogeneous wrought-metal structure of extruded shapes. For imaginative and practical help in adapting extruded shapes to the economical production of intricate parts, see your Anaconda representative. Or write: Anaconda American Brass Co., 14900 Garfield Ave., Paramount, Calif. In Canada: Anaconda American Brass Ltd., New Toronto, Ont. 6143PC

# ANACONDA®

... for more details, circle No. 17 on Reader Service Postcard

WESTERN MANUFACTURING/JUNE 1961



## NEWS of MEETINGS

### Foundrymen Meet In San Francisco

ONE MORE SIGN of the growing importance of the West in industrial development is the 1961 Castings Congress, which was held in San Francisco last month. This makes the first time in its 65 year old history that the American Foundrymen's Society, sponsor of the Congress, has met nationally on the West Coast.

Close to 5000 attended the week-long meeting and listened to technical papers covering all phases of foundry practice. Some 100 papers were presented by speakers from every section of the country and from several foreign countries.

At a press conference held during the event officials of the American Foundrymen's Society commented on the changes that have taken place in this industry. Foundries are becoming more highly mechanized due mainly to advances in material handling. Materials being cast are changing too. Ductile iron and aluminum are two metals whose casting tonnage is growing rapidly. On the West Coast, officials noted that advances are being made in foundries that are far ahead of the rest of the country when it comes to casting exotic materials for space and electronic industries. In this respect the West is leading the way for future developments throughout the industry. Indicative of this trend was the fact that 11 of the papers presented were from space age industries.

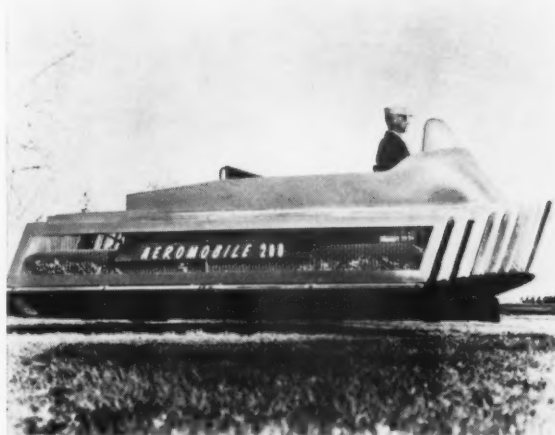


**OFFICIALS** of American Foundrymen's Society meet the press at the Society's 65th Annual Castings Congress, Palace Hotel, San Francisco, May 8-12. Left to right are J. M. Snyder, Publicity Chairman; Samuel D. Russell, General Chairman of Congress; Norman J. Dunbeck, AFS President; Albert Hunt, AFS Vice President; and Will Maloney, AFS General Manager. This is the first time AFS has held a national meeting on West Coast.

AFS officials discussed the opportunities in the foundry field for youth and stated that the industry can use more young men with technical backgrounds. In recent years the technical aspect of casting has increased and this trend is expected to continue.

### Maintenance and Safety Meetings Highlight Truck Show

THE INTERNATIONAL TRUCK, Trailer and Equipment Show to be held in Brooks Hall, San Francisco, June 28, 29 and 30 is being planned as a "giant workshop in truck transportation maintenance, safety and operations procedures," according to Scribner Birlen-



**THE FLYING CAR** (Bertelsen Aeromobile 200) is scheduled to be demonstrated at the International Truck, Trailer and Equipment Show at regular intervals during the three show days.

bach, President of Transcon Lines and Chairman of the first Truck, Trailer and Equipment Show to be sponsored by the California Trucking Associations, Inc.

During the show the annual two day meeting of the Safety Congress and the Maintenance Institute will be held, performing its regular function of acting as a gathering point for the newest ideas in reducing maintenance costs, accident frequency and other factors.

Prominent specialists in each field will head up the panel discussions. Highlight of the meetings will be a panel discussion on "The Importance of Fuels in Fleet Longevity" in which Don Collins, Supervisor, Truck and Bus Sales, Standard Oil Company; and Charles Painter, Automotive and Industrial Engineer of Mobil Oil Company will participate.

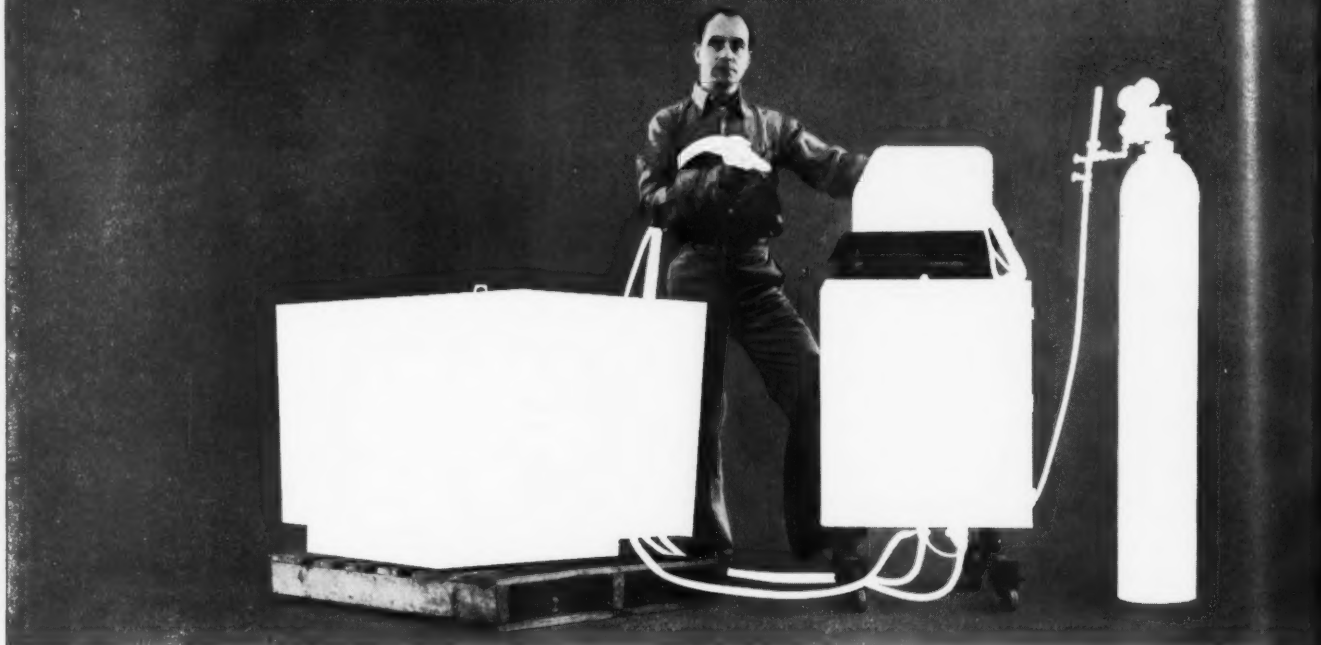
Henry Kockritz of Lear, Inc., will head up a panel on the "Third Braking System." Other panels will be announced at a later date.

The California Trucking Associations, has available through its membership and suppliers to the industry, some of the leading authorities in these various fields who will join the panel discussions, which are normally attended by more than 400 truck owners and maintenance superintendents each year.

During the show the semi-annual meeting of the California Trucking Associations' Board of Directors will

(Continued on page 14)

## WHEN YOU USE GAS-SHIELDED METAL ARC WELDING



## ONLY THE AIRCOMATIC® LINE GIVES YOU EVERYTHING YOU NEED

*A set-up for high speed, low cost Aircomatic welding: Aircomatic Fillerarc Rectifier Power Source, Aircomatic Pull Gun, Automatic Wire Feeder, Flowmeter with Gas Regulator, High Purity Shielding Gas . . . All-Airco matched components.*



**Aiming to weld jet engines? . . . Rock crushers? . . . Whole trains of aluminum gondola cars? . . . Auto body frames? . . . mild steel, stainless, copper alloys or metals of the future?**

**Do it the Aircomatic way!** You can weld it up to 7 times faster, and still turn out top quality welds!

**How is this possible?** Airco's range of equipment is unequalled anywhere. As a result you get matched components which fit precisely the specialized demands of your job.

**Specifics:** The Airco Pull Gun handles small diameter wires with the highest precision of all semi-automatics. The Aircomatic Wire Feeder gives you the finest wire feed speed

control. The Aircomatic Fillerarc Rectifier gives you the ultimate in versatility and performance.

For top dollar savings in fabrication here's the No. 1 line in the gas shielded metal arc welding business. Call Airco . . . where the big idea is teamed with unexcelled experience!



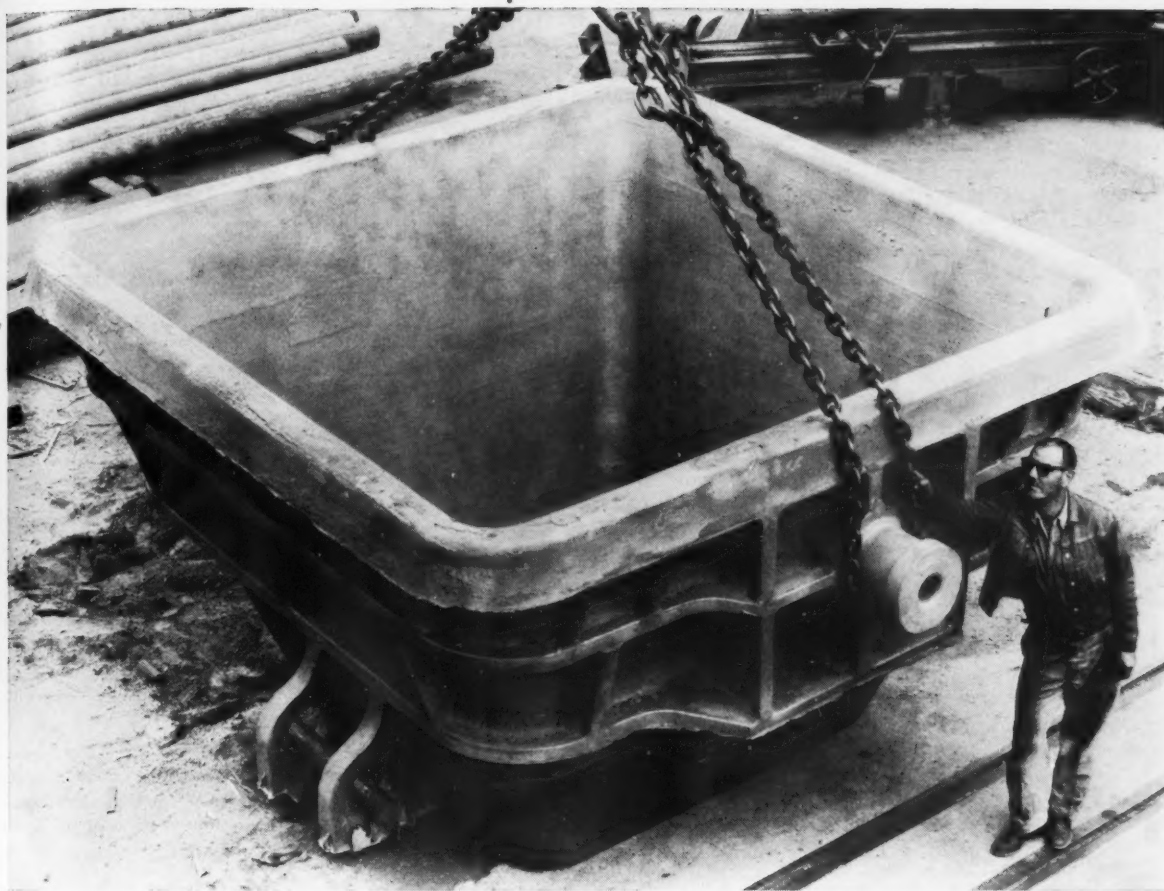
### AIR REDUCTION PACIFIC COMPANY

A division of Air Reduction Company, Incorporated  
 SAN FRANCISCO • LOS ANGELES • PORTLAND • SEATTLE  
 Bakersfield • Burbank • Emeryville • Fresno • Inglewood  
 Phoenix • Sacramento • San Diego • Stockton • Tacoma  
 and AUTHORIZED DISTRIBUTORS

Western Headquarters for Oxygen, Acetylene and Other Gases . . . Carbide . . . Gas Welding and Cutting Machines, Apparatus and Supplies . . . Arc Welders, Electrodes and Accessories

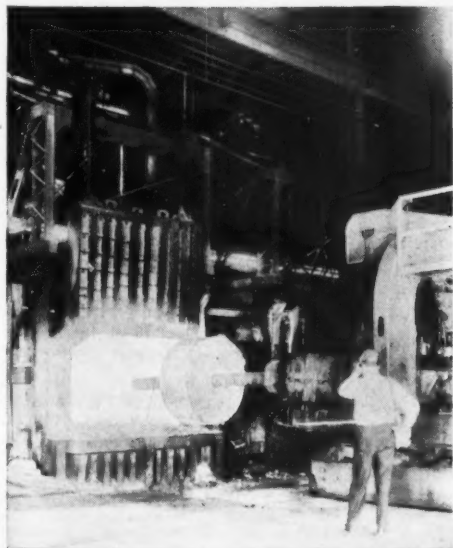
. . . for more details, circle No. 23 on Reader Service Postcard





This 27 ton square slag pot with 390 cubic foot capacity was cast at National Supply's Torrance plant.

## How National Supply's West Coast facilities can be used to solve **CASTING, FORGING, MACHINING PROBLEMS**



It will pay you to investigate use of National Supply's facilities to solve production problems. Our Torrance, California plant has extensive equipment for melting, casting, machining and testing. These facilities are readily available for breaking the bottlenecks that frequently slow down your entire production schedules.

We can supply steel forgings, billets and large bars, steel castings and special machinery to meet your requirements. Call today for information, or write for quotations and delivery information. Write to National Supply Division, Armco Steel Corporation, Torrance, Cal.



### **ARMCO National Supply Division**

◀ Quality control is a prime consideration at the Torrance plant, the largest integrated machinery-making plant in the West.



Steel's Symbol  
of strength,  
long life,  
and economy

... for more details, circle No. 19 on Reader Service Postcard

## News of Meetings

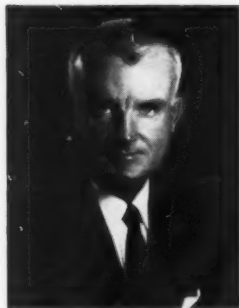
(Continued from page 11)

also be held, and the meeting of the Western Highway Institute Board of Directors, which will be held currently in San Francisco, is also expected to attract additional attendance to the show.

A feature of the show will be a display and demonstration of the "flying car" (the Bertelsen Aeromobile 200) at Aquatic Park in San Francisco at 12:30 P.M. on the opening day and later at the entrance of Brooks Hall which will attract attention to the event and be of great interest to the many in attendance. The Aeromobile travels suspended about 12 inches above the ground over any unobstructed surface, land, water, sand or ice. This will be the first public demonstration of the Aeromobile in the San Francisco Bay area.

Main focus of attention at the show will be the over 100 exhibits of truck equipment exemplifying "the latest in today's and tomorrow's highway transportation" and allied exhibits which will cover such items as tools, office equipment, maintenance equipment, financing and insurance.

## Westener Is New MHEDA President



Don Ferguson

NEW PRESIDENT of the Material Handling Equipment Distributors Association is Don S. Ferguson, Vice President of Robert H. Braun Co. He took office at the MHEDA National Convention in Denver on June 2. Ferguson was previously serving as MHEDA Director of Region 10, which encompasses Southern California and Arizona. He

is the fifth president of that organization.

Ferguson has been active in the material handling field since World War II when he served as a supply officer in the Navy. He joined the Braun Co. in 1946 and was elected Secretary-Treasurer in 1947. An active member of the Los Angeles Chapter of the American Material Handling Society since its start, he is currently a member of the Board of Directors.

## 1961 Joint Computer Conference

WITH A FINAL registration total of 3514, the Western Joint Computer Conference went on record as being the largest computer industry gathering in history with more than half of the delegates coming from the 13 Western state area.



**HOLDING** up a section of multi-layer printed circuitry used in producing thin-film memory planes is Dr. S. M. Rubens, Remington Rand Univac. The new memory system was shown for the first time at Western Joint Computer Conference and enables computers to operate in a billionth of a second.

Meeting under the theme, "Extending Man's Intellect," conferees heard 70 technical papers and viewed more than \$3,000,000 of equipment exhibited at conference headquarters in the Ambassador Hotel.

On display were faster, smaller, and less expensive computers that are now available or are being developed for the industrial market. Devices such as the thin-film memory device developed by Remington Rand Univac Div., Sperry Rand Corp. allow computer operations in billionths of a second.

The Southern California and Arizona area are currently responsible for 16% of the national sales volume in the computer industry that is running at an estimated \$3 billion annually. Ten national firms with Western locations are employing more than 200,000 in research, design and manufacture or direct use of computers.

## Calendar of Western Meetings

**June 28-30—INTERNATIONAL TRUCK, TRAILER & EQUIPMENT SHOW.** Brooks Hall, San Francisco. California Trucking Associations, Inc.

**June 28-30—2nd JOINT AUTOMATIC CONTROL CONFERENCE.** University of Colorado, Boulder, Colorado. Sponsored by ISA, AICHE, AIEE, ASME, IRE.

**July 4-7—27th ANNUAL MEETING PROFESSIONAL ENGINEERS.** Olympic Hotel, Seattle, Washington. National Society of Professional Engineers.

**July 18-20—WESTERN PLANT MAINTENANCE & ENGINEERING SHOW.** Pan Pacific Auditorium, Los Angeles. Sponsored by Clapp & Poliak, Inc.

**Aug. 22-25—1961 WESTERN ELECTRONIC SHOW & CONVENTION.** Cow Palace, San Francisco. West Electronic Manufacturers Association.

**Aug. 28-Sept. 1—INTERNATIONAL HEAT TRANSFER CONFERENCE.** University of Colorado, Boulder, Colorado. Co-hosts are American Society of Mechanical Engineers and American Institute of Chemical Engineers.

**Aug. 30-Sept. 1—AIME SEMICONDUCTOR CONFERENCE.** Ambassador Hotel, Los Angeles. Sponsored by American Institute of Mining Metallurgical and Petroleum Engineers.

**Sept. 5-8—NATIONAL CONFERENCE & INTERNATIONAL DATA PROCESSING EXHIBIT.** Statler-Hilton Hotel, Los Angeles, Calif. Sponsored by Association for Computing Machinery.

**Sept. 6-8—NEW PRODUCT EXHIBIT & CONFERENCE.** Ambassador Hotel, Los Angeles. Sponsored by Los Angeles Chamber of Commerce.

**Sept. 13-15—CONVENTION & ANNUAL MEETING PACIFIC COAST GAS ASSOCIATION.** Coronado Hotel, Coronado, Calif. Pacific Coast Gas Association.

**Oct. 4-6—WESTERN REGIONAL CONFERENCE NACE.** Benson Hotel, Portland Ore. Sponsored by National Association of Corrosion Engineers.

## STANDARD ENGINEER'S REPORT



### Speeds up to 2600 feet per minute, and no lube problems with Chevron Industrial Oil

This huge paper machine of MacMillan, Bloedel and Powell River Co., Port Alberni, British Columbia works round-the-clock seven days a week, yet bearings and retainer sleeves remain free of carbon and varnish using Chevron Industrial Oil.

"Chevron Industrial Oil 68X gives us excellent performance under really tough conditions," says Al Law, Lubrication Supervisor. "The acidity has remained low even though we run at speeds up

to 2600 feet per minute and dryer temperatures average 270°F. or better. Lines stay clean and the oil doesn't eat into filter cloths. And, we've never lost a bearing due to lubrication."

The Port Alberni Plant operates a Flakt pulp dryer, John Inglis specialty and two Beloit paper machines to produce 1200 tons of pulp, newsprint and specialty products per day. Chevron Industrial Oil has worked so well they expect it to last twice as long as

originally anticipated. Lubrication problems? Let a technically qualified Standard Engineer solve them for you. His practical experience and the wide range of top quality Standard products assure an economical solution to your lubrication problems.

The largest field force of lubrication engineers in the West is at your service. For this valuable free technical help, just call your local Standard office or write Standard Oil Company of California, 225 Bush Street, San Francisco 20.



**STANDARD OIL COMPANY OF CALIFORNIA**

TRADEMARK "CHEVRON" AND CHEVRON DESIGN REG. U.S. PAT. OFF.

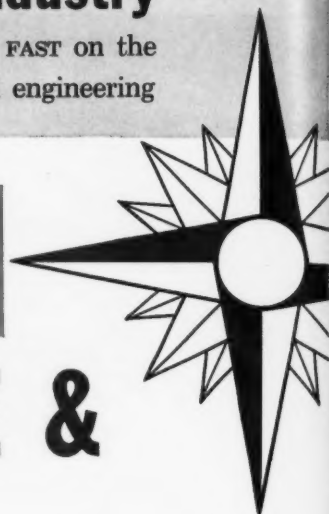
... for more details, circle No. 21 on Reader Service Postcard



## event of the year for western industry

... a not-to-be-missed opportunity to catch up FAST on the answers to more efficient plant maintenance and engineering

# 1961 **WESTERN** PLANT MAINTENANCE & ENGINEERING SHOW and Conference



*Pan Pacific Auditorium—LOS ANGELES July 18-19-20, 1961*

Western industry has been growing at record levels for many years. But the faster it grows, the more acute the need to make sure the efficiency of its operations keeps abreast of its expansion and diversification.

So now—to bring plant executives conveniently up-to-date on all the best in supplies, machinery, equipment, and services — America's leading producers of your maintenance and engineering needs are converging on Los Angeles July 18, 19 and 20.

There will be thousands of products and services for you to compare and study in this first Western Plant Maintenance and Engineering Show since 1957. And there will be application engineers in every booth to answer your questions and to make specific recommendations from a wealth of experience.

There are two days of concurrent conference sessions also—ranging over a wide group of important subjects, and all geared to western industry's problems and opportunities. (All conference sessions are at the Aero-Space Institute, just on the other side of the Pan Pacific Auditorium parking lot.)

Cost reduction—better working conditions—faster, safer, more efficient plant facilities. *You* name the subjects of deepest interest to you, and there will be a host of new ideas for you at this great show and conference.

**SPECIAL NOTE TO INDUSTRY MANAGEMENT:** *Months of field study and investigation could not produce the information available in just a few days at the Western Plant Maintenance and Engineering Show. Attendance by your plant executives is one of the soundest investments you can make for both the present and future progress of your company. For further details, write or phone the Western Plant Maintenance and Engineering Show, 759 Monadnock Building, San Francisco 5 (Telephone: Douglas 2-7876).*

**CLAPP & POLIAK, INC.,** *Show Management*

341 Madison Avenue, New York 17—759 Monadnock Building, San Francisco 5

... for more details, circle No. 22 on Reader Service Postcard

WESTERN MANUFACTURING/JUNE 1961

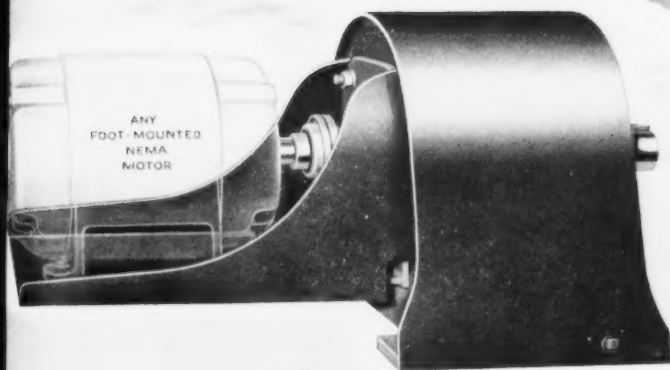
... for more details, adv. opp. pg., circle No. 23 on Reader Service Postcard ➡







## A GOOD NAME IN INDUSTRY



**20,000 hp  
at 100 rpm**

**...or 75 hp  
at 100 rpm**

### THE FALK ALL-STEEL, ALL-MOTOR MOTOREDUCTOR

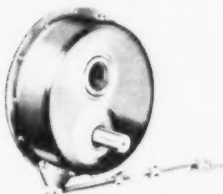
(also available in Integral models)

...one of America's First Family  
of Power Transmission Products

#### Other Members:

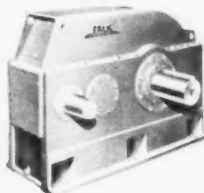
#### SHAFT MOUNTED DRIVES

—up to 125 hp. Ask  
for Bulletin 7100. Also  
Flange Mounted and  
Screw Conveyor Drives.



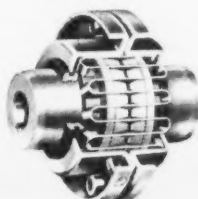
#### SPEED REDUCERS

Parallel Shaft up to  
3500 hp. Ask for  
Bulletin 1100. Also  
Right Angle and  
Concentric Shaft  
designs.



#### STEELFLEX COUPLINGS

All-steel, torsionally  
resilient. 34 sizes, from  
.3 to 130,000 hp at  
100 rpm. Ask for  
Bulletin 4100.



If you were in the market for a 20,000 hp propulsion drive for a blue-ribbon super-tanker, you would expect and demand the ultimate in gear accuracy. On turbine-driven gears as large as 15 feet in diameter and four foot face width, any deviation in tooth-spacing tolerances of .0001" to .0002" would spell poor performance or disastrous failure...the latter entailing loss of service of the ship and ruinously expensive repairs or replacements.

Falk, producer of millions of horsepower of marine propulsion drives for nearly fifty years, has been continuously adding to its gear making experience and techniques—and applying the results to all products, standard drives as well as large special units, with the same full respect for the importance of accuracy. Today's versatile All-Steel Motoreducer is a striking example of the application of these attitudes and skills in producing the many standard gear units used throughout your own industry.

Falk gears have the highest known efficiency...98½% per mesh under full load...plus the famous Falk extra-depth, high-pressure-angle teeth. Benefits to you: better service, less maintenance, extra durability, true economy. Available in horizontal, vertical and right-angle models; sizes up to 75 hp. See your Falk Representative or Authorized Distributor—or write for Bulletin 3100.

### THE FALK CORPORATION, MILWAUKEE 1, WISCONSIN

MANUFACTURERS OF QUALITY GEAR DRIVES AND FLEXIBLE SHAFT COUPLINGS

Representatives:

DENVER 3, Colorado.....	655 Broadway Bldg.....	AComa 2-4707
LOS ANGELES 22, California.....	P. O. Box 22049.....	RAYmond 3-8466
PORTLAND 14, Oregon.....	1035 S. E. 9th Avenue.....	BEImont 6-4117
SAN FRANCISCO 7, California.....	427 Bryant Street.....	SUTter 1-4738
SEATTLE 99, Washington.....	P. O. Box 4065.....	ATwater 3-8460

WAREHOUSES IN LOS ANGELES AND PORTLAND

FALK, ALL-MOTOR  
and STEELFLEX  
are registered trademarks.



**Easy to fabricate . . .**

*Shear, form or weld A.W. Super Diamond with standard shop equipment. Pattern matches any angle.*

## **SUPER DIAMOND**

**Easy to clean . . .**

*Sweep, hose or mop A.W. Super Diamond. Water drains off in all directions. No pockets to hold dirt.*

## **FLOOR PLATE**

**Non-skid . . .**

*Reduces slides and slips. Super Diamond puts safe footing on steps, ramps, aisles; aids traction even if wet.*

**Write for Bulletin SD-56**



### **ALAN WOOD STEEL COMPANY**

**Conshohocken, Pa. • STEEL PRODUCERS WITH THE CUSTOMER IN MIND**

DISTRICT OFFICES AND REPRESENTATIVES: Philadelphia • New York • Los Angeles • Boston • Atlanta  
Cincinnati • Cleveland • Detroit • Houston • Pittsburgh • Richmond • St. Paul • San Francisco • Seattle  
Montreal, Toronto and Vancouver, Canada: A. C. Leslie & Co., Ltd.

*. . . for more details, circle No. 24 on Reader Service Postcard*

**WESTERN MANUFACTURING/JUNE 1961**

**WE CAN HEED  
YOUR NEED FOR SPEED**

## with **AMPCO**® metal Extruded Rods



Bearings machined from Grade 18  
Ampco Metal extruded rod.

Valve guide  
of Ampco Metal  
extruded rod.

Made exclusively from *new* metals, the consistency of these copper-base alloy extrusions makes them ideal for bearings, gears, worm wheels, hydraulic equipment, slides, gibs, and numerous other parts which must withstand abuse. The drawn finish reduces the machining allowance to the very minimum. Freedom from porosity and inclusions eliminates scrap and waste.

Sand castings  
Machined parts

Centrifugal castings  
Forgings

**... and off-the shelf delivery on these  
AMPCO metal products:**

*Ampco Aluminum Bronze*

*Resistance-Welding Products*

Sheet and plate

Extruded rod and bar

Centrifugally-cast  
semi-finished bars

Spot-welding electrodes

Holders and accessories

Extruded rod

Seam-welding wheels

WC-2



**AMPCO METAL, INC.**

6131 Maywood Ave.

Huntington Park, California

WC-2

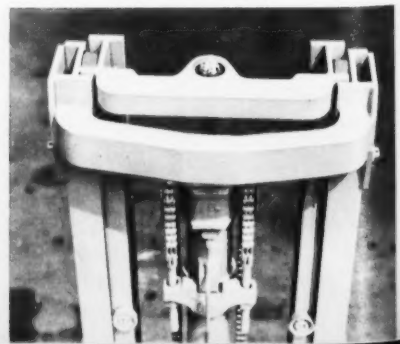
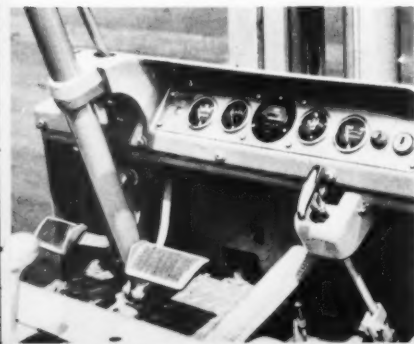
MAIN OFFICE AND PLANT: MILWAUKEE 1 • WISCONSIN • SOUTHWEST PLANT: GARLAND (DALLAS COUNTY), TEXAS



**Fast, safe operation** • centrally located controls • protected instrument panel • separated ignition key and starter switch • reinforced steering column bracket • automotive type inching, brake pedals.

**Low seating position** on G54 speeds trailer loading and increases safety. Seating height of 37" and overall height of 71" affords the driver plenty of headroom for safer operation.

**Double I-beam on mast** affords greater strength and stability, and less deflection. Exclusive side thrust rollers for mast and carriage assure frictionless lifting action at all times.





# YALE OFFERS: FIRST COMPACT GAS LIFT TRUCKS

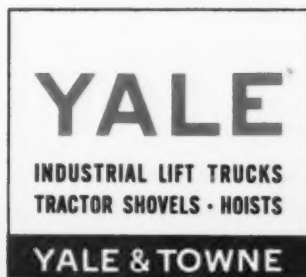
- Solid or pneumatic-tired • 3000, 4000, 5000 lb. capacity • Gasoline or LP-Gas powered • 52 HP engine in solid-tired model, 72 HP engine in pneumatic-tired model
- New, improved automatic torque transmission.

You get compactness and speed for faster, safer operation cycle from the Yale G54 series gas trucks. Lifting is a job the Yale Compact does fast . . . from 75 to 80 FPM. Its controlled lowering speed ranges from 55 to 80 FPM. You have full lifting speed at all times, plus increased pump life, assured by the patented super-charged hydraulic tank. You easily adjust the exclusive mechanical inching control to your individual operational requirements. What's more, Yale Compact offers you greater safety, with self-energizing, self-adjusting brakes and wheels. Operation is easier and more efficient. You operate all hydraulic attachments of the Yale Compact with only one exclusive, multi-function control handle.

Flexible lease and finance plans are available to put this truck to work for you immediately.

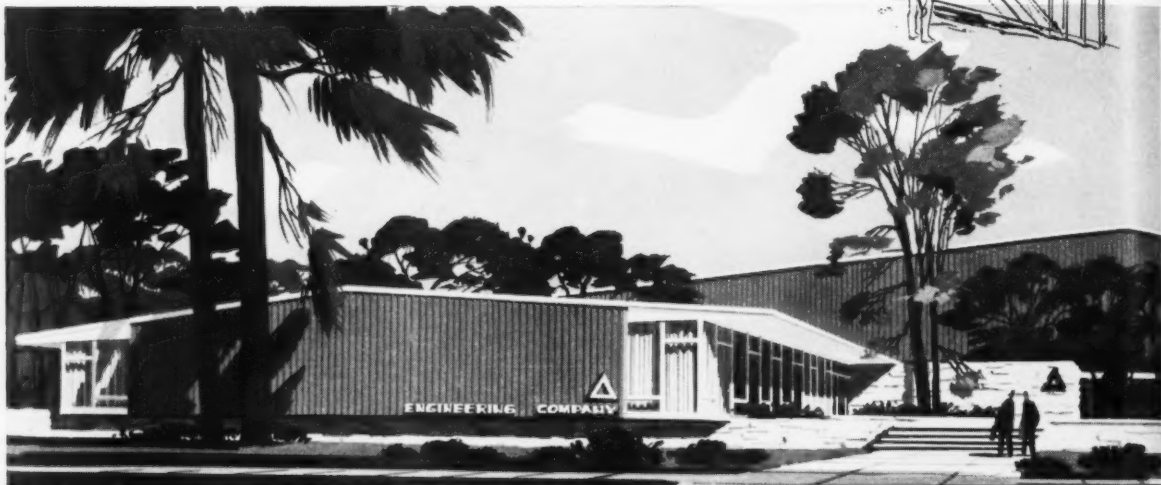
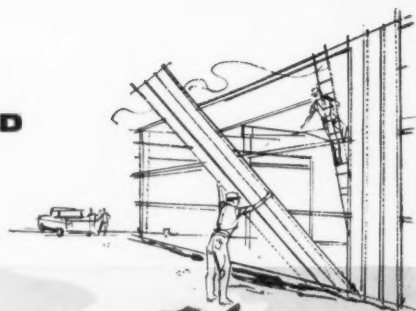
*Yale Materials Handling Division, Dept. G-102, Phila. 15.  
A Division of The Yale & Towne Manufacturing Company.*

Safe ride and shock reduction, better stability, and a self-righting effect come from Yale's new steering axle design. Steering axle mounts on two 2" diameter articulating pins.



## BUILDINGS UNPRECEDENTED

by Butler, of course



Designed by James John Derks, Architect, Chicago

### *Never before such beautiful, efficient industrial buildings for so little money*

When you invest in a new industrial building, your first practical consideration is cost; the effect on your capital. Then, the building's influence on your operation. Last, but not least, reaction of people to the building. It has to please customers and clients, has to please the community in which you locate.

New Butler Buildings are truly unprecedented in all these respects. Beautiful work buildings! Beautiful buy! Beautiful public relations tools!

The re-designed new Butler line offers tremendous variety. Over 400 basic designs, in many sizes. Interchangeable components with exciting design variations. Bold new contemporary profiles. Handsome new

wall systems, never before seen on pre-engineered buildings. Subtle new colors and shades. Elegant, tailored trim, doors and windows, all design-integrated to give structures a perfectly finished look.

No other pre-engineered building system puts so much emphasis on appearance. No other buildings are so completely factory fabricated. Naturally, this factory fabrication results in an end product that looks better in every detail. A more efficient, durable building, too. It's the lowest-cost way to build well.

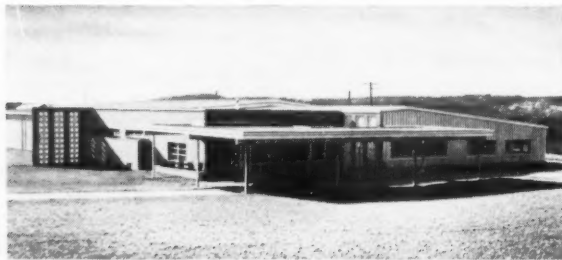
Phone your Butler Builder for the full story. He's listed in the Yellow Pages under "Buildings" or "Steel Buildings." Ask about financing, too. Or write direct.



### BUTLER MANUFACTURING COMPANY

DEPT. 72A, 2710 BUTLER AVENUE, RICHMOND 1, CALIFORNIA

Manufacturers of Metal Buildings • Plastic Panels • Equipment for Farming, Transportation, Bulk Storage, Outdoor Advertising • Contract Manufacturing



Architect / Richard J. Weibel and Associates, Erie, Pennsylvania

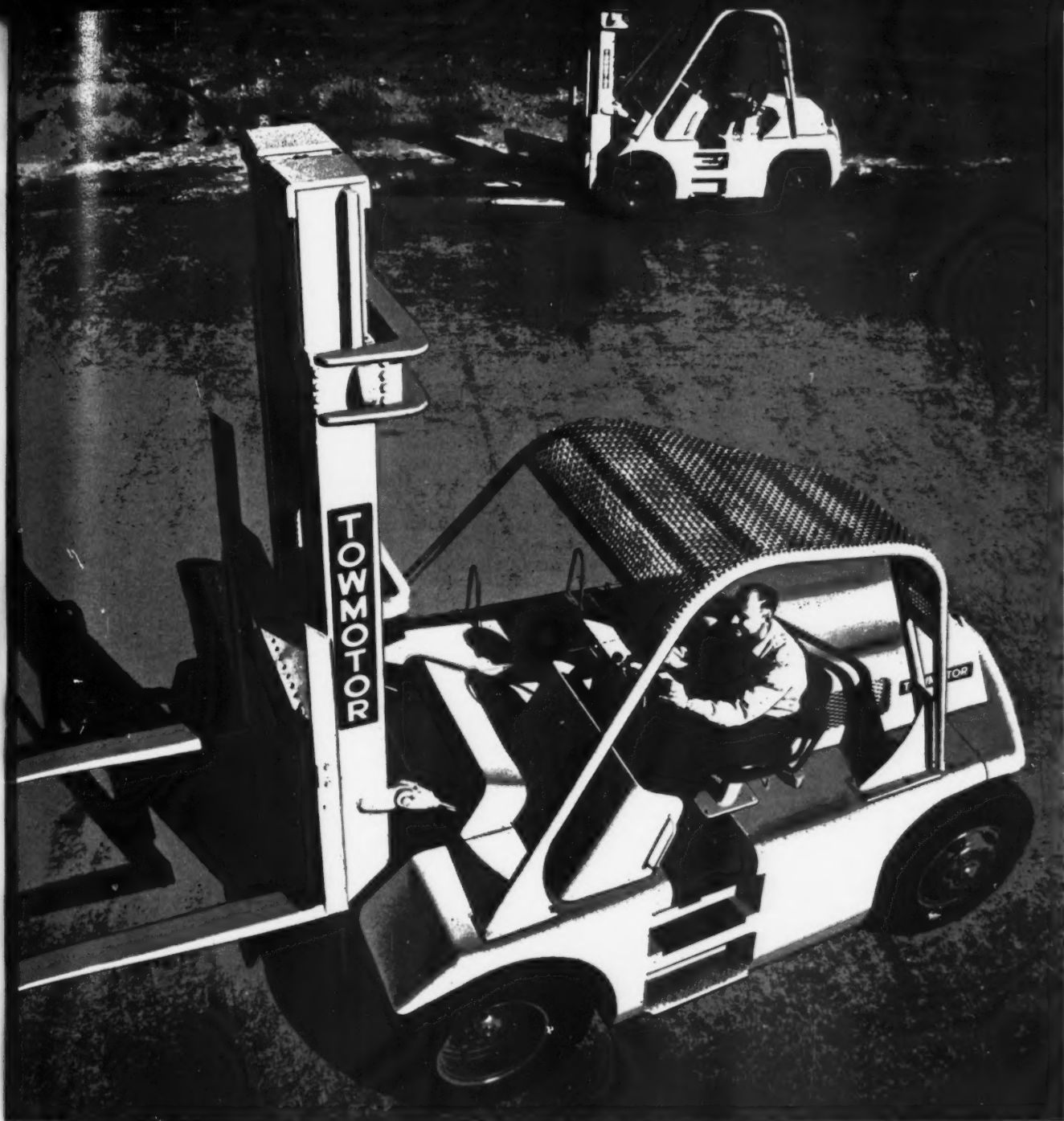


Architect / Zay Smith and Associates, La Grange, Illinois  
... for more details, circle No. 27 on Reader Service Postcard

WESTERN MANUFACTURING/JUNE 1961

... for more details, adv. opp. pg., circle No. 28 on Reader Service Postcard →



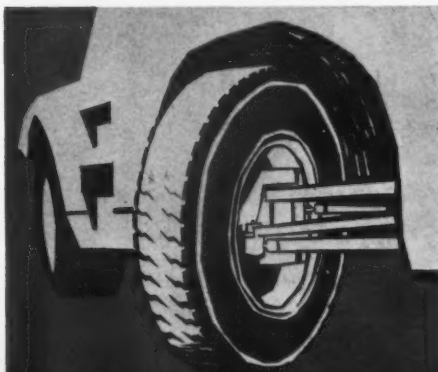


## TOWMOTOR'S ON THE MOVE

—leading the way with big fork lift trucks that offer new mass-handling techniques. Heavy duty trucks with “unitized” frame and body for a long lifetime of low-cost maintenance. Lift trucks engineered for extra road and load visibility, better maneuverability, easier operation. Move more with Towmotor fork lift trucks—made only by TOWMOTOR CORPORATION, CLEVELAND 12, OHIO.



*Pivot-action steering axle is an outstanding feature of new Towmotor “Monarch” Series fork lift trucks (above), with load capacities up to 24,000 pounds. Fast, smooth maneuvering results from Monarch’s wider track axle pictured below. It pivots in rubber to absorb road shocks.*



**WAGNER<sup>®</sup>**  
**MOTORS**  
**AT**  
**WORK**

## power to make ammonia

100 hp Wagner<sup>®</sup> explosion-proof motor provides safe, all-weather drive for gas reform induced draft fan

The motor: a totally-enclosed, fan-cooled Wagner Type JP-1. It's the perfect power package for the fan it drives in the Phillips Pacific Chemical Corporation plant at Kennewick, Washington. It is completely explosion-proof—protected against dust, dirt, abrasives and fumes, and is capable of operating for long periods under critical conditions without maintenance.

Now, your end products may be aluminum awnings or axes instead of anhydrous and aqua ammonia. But you do use electric motors. And we've got motors that will keep your production rates up . . . motors with a wide variety of enclosure types and mountings in ratings through 1000 horsepower. Design-wise, they'll please your most demanding engineer. Work-wise, they'll please you, for they get the job done.

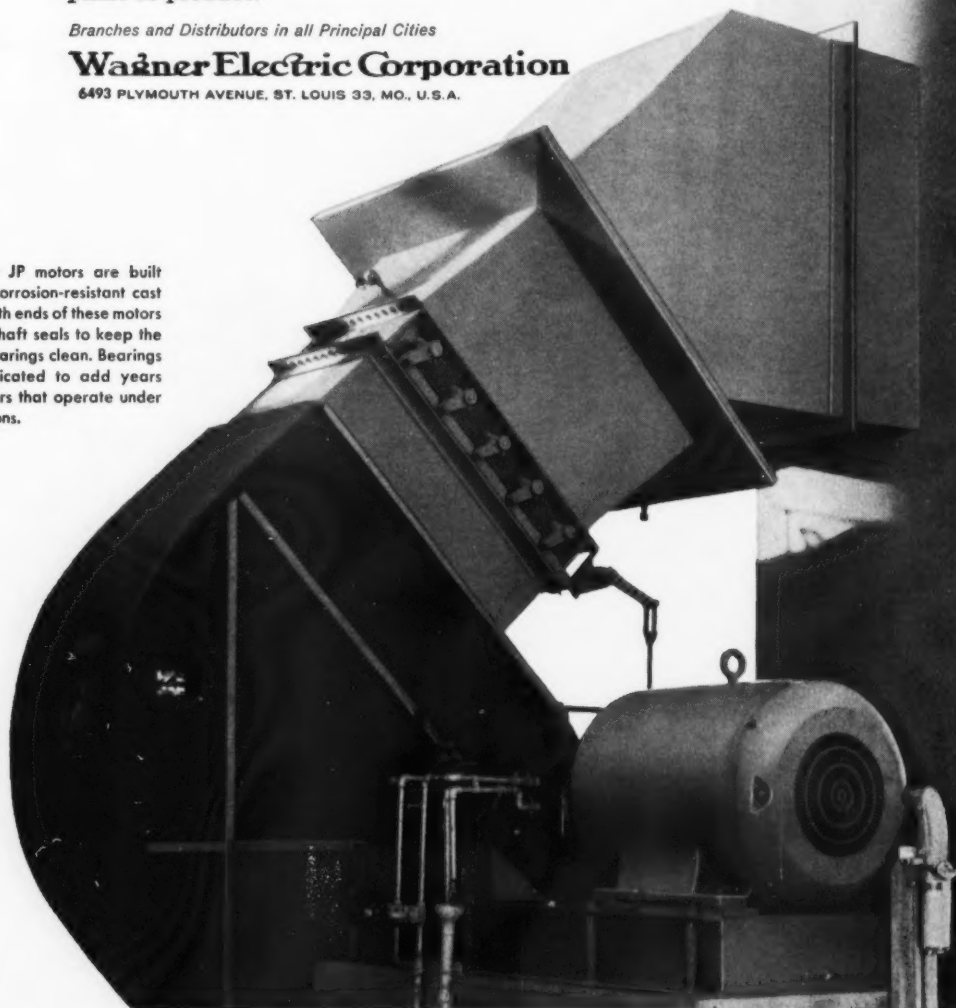
Wagner motors have been getting the job done for over 65 years. What's more, our program of constant research and development in electric motor design makes sure that Wagner motors will continue to lead where it counts . . . in performance. Call your Wagner Sales Engineer for an analysis of your next motor application, be it for plant or product.

*Branches and Distributors in all Principal Cities*

**Wagner Electric Corporation**

6493 PLYMOUTH AVENUE, ST. LOUIS 33, MO., U.S.A.

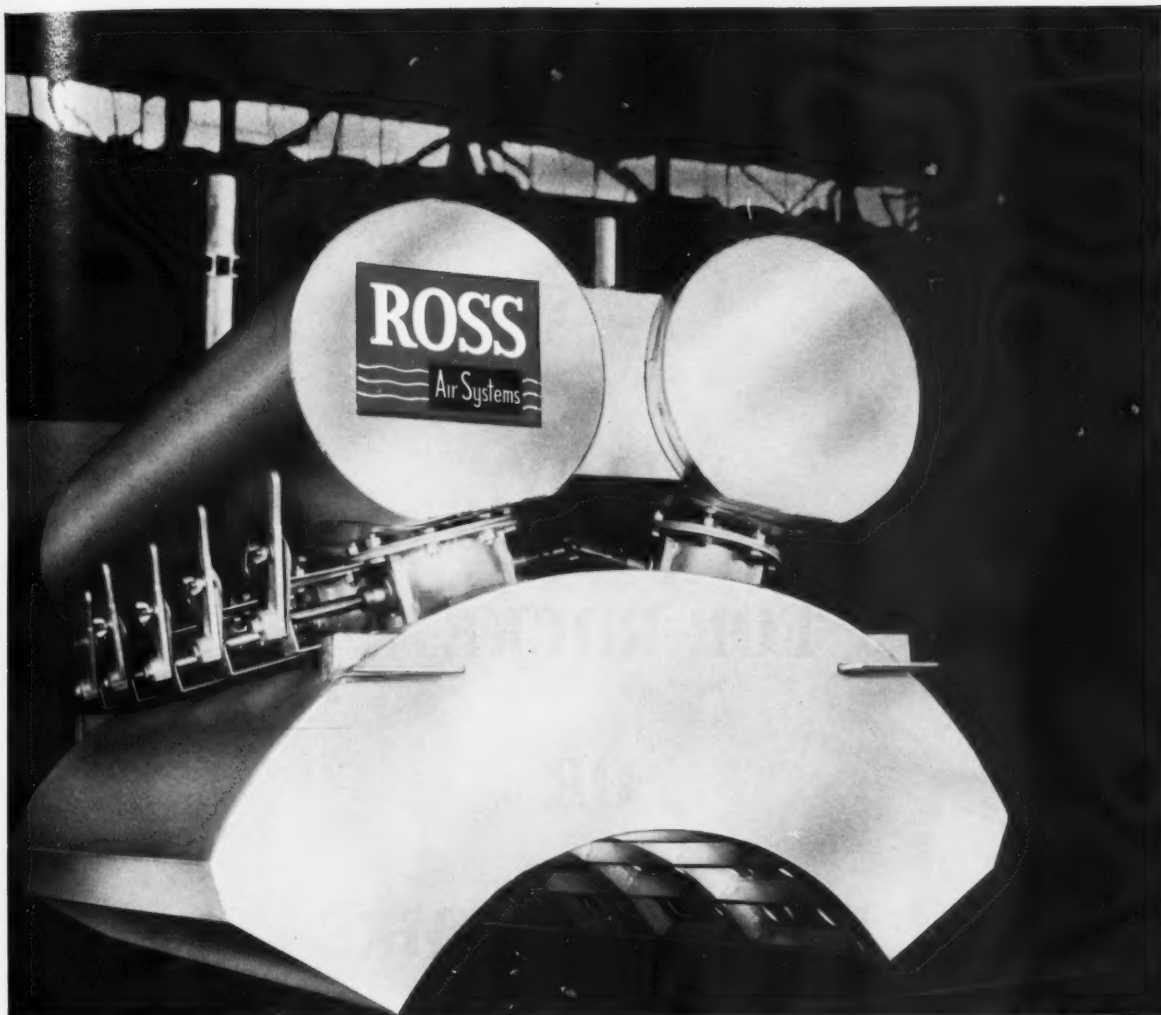
Wagner Type JP motors are built with rugged, corrosion-resistant cast iron frames. Both ends of these motors have running shaft seals to keep the heavy-duty bearings clean. Bearings can be relubricated to add years to life of motors that operate under severe conditions.



WH61-9

... for more details, circle No. 29 on Reader Service Postcard

WESTERN MANUFACTURING/JUNE 1961



## Increase Production with High Velocity Drying

COATED PAPER • SATURATED PAPER • FILM & FOIL  
IMPREGNATED PAPER • LAMINATES • MATRIX MATS

There is an amazing story of production increases and space savings behind each of the many Ross High Velocity Dryer installations. The installation of a Ross engineered High Velocity unit can change your production picture overnight. Write today and find out what ROSS High Velocity Drying can do for your process.

**West Coast Facilities:**

6417 Bandini Blvd., Los Angeles 22, Calif 2909 Third Avenue, Seattle 1, Washington  
Phone: OVerbrook 5-7880 Phone: MAin 4-7165

# J. O. ROSS

**J. O. ROSS ENGINEERING**/a division of Midland-Ross Corporation  
730 Third Avenue, New York 17, New York  
ATLANTA • BOSTON • DETROIT • LOS ANGELES • SEATTLE • MT. PROSPECT, ILL. • MOBILE



... for more details, circle No. 31 on Reader Service Postcard

# READY... FOR ROCKETS OR ROCKING CHAIRS

Manufacturers here on the West Coast turn out both and practically everything in between. Somewhere in the making of almost every product, you remove material. You cut it, grind it, tumble it, blast it, polish it or sand it. Whether you do it for critical interchangeability and performance reliability or for just plain eye-appealing decorative finish . . . you use an abrasive. That's our business—*abrasives*. Products, machines and methods. We think it's our responsibility to provide the *correct* product, to help with application recommendations, to demonstrate and to teach operators. To do it *right*, we built something new—an **Abrasives Service Center** at 2240 South Yates Avenue, Los Angeles. We're stocked, staffed, equipped and geared like no one this side of the Rockies for continued industrial growth . . . West! **CARBORUNDUM**

PACIFIC ABRASIVE SUPPLY COMPANY

*. . . for more details, circle No. 32 on Reader Service Postcard*



ng  
ve  
ou  
ain  
—  
ity  
ns,  
y—  
re  
ies  
M  
ANY  
stcard



# new "ceiling of light" from **SMOOT-HOLMAN**



In the recent modernization of their Ontario, California office, the So. Calif. Edison Company used customized louvered Smoot-Holman "Perfect Vision"® luminaires. These replaced continuous rows of surface mounted, direct fluorescent units.

## HERE'S WHY SO. CALIF. EDISON CHOSE "PVs"

● **REMODELING COSTS GREATLY REDUCED — NO NEW CEILING REQUIRED.** This customized "Perfect Vision"® installation, which embodies the use of plastic louvers between the luminous panels, is itself a "ceiling of light." There was no need to rebuild or to drop the ceiling. In the photograph above, the fixtures are suspended from the original ceiling using 18" stem hangers. (This attractive, easy to install and maintain lighting system is also ideal when it is necessary to cover an uneven ceiling, water pipes, beams, or discolorations.)

● **IMPROVED LIGHTING.** Customized louvered Smoot-Holman "Perfect Vision"® luminaires provide comfortable, shadowless illumination. A light level of approximately 150 foot candles is maintained in the office pictured. This installation made a marked improvement in light provided for typing and tasks performed in a vertical plane.

● **EASY TO MAINTAIN.** In contrast to most luminous ceilings, this installation has lamps at the ceiling line for easy cleaning and relamping.

● **BALLASTS LAST LONGER.** Ballast overheating had been a problem with the former surface mounted fixtures. These new suspended fixtures assure cool ballast operation.

● **PLEASING APPEARANCE.** The soft, even lighting — completely without glare — is pleasing to the eye and conducive to good work. The plastic louvers spaced between the "PV" lamp panels give unobtrusive relief from the monotony of a conventional type luminous ceiling.

● **CREDITS.** Mr. James Howard of the So. Calif. Edison Engineering Department, together with Don Rawlinson, lighting consultant in the Ontario office, planned the installation. In Mr. Howard's words, "Without having to rebuild the ceiling, we got improved lighting and a pleasing decorative appearance using customized louvered Perfect Vision® Luminaires."

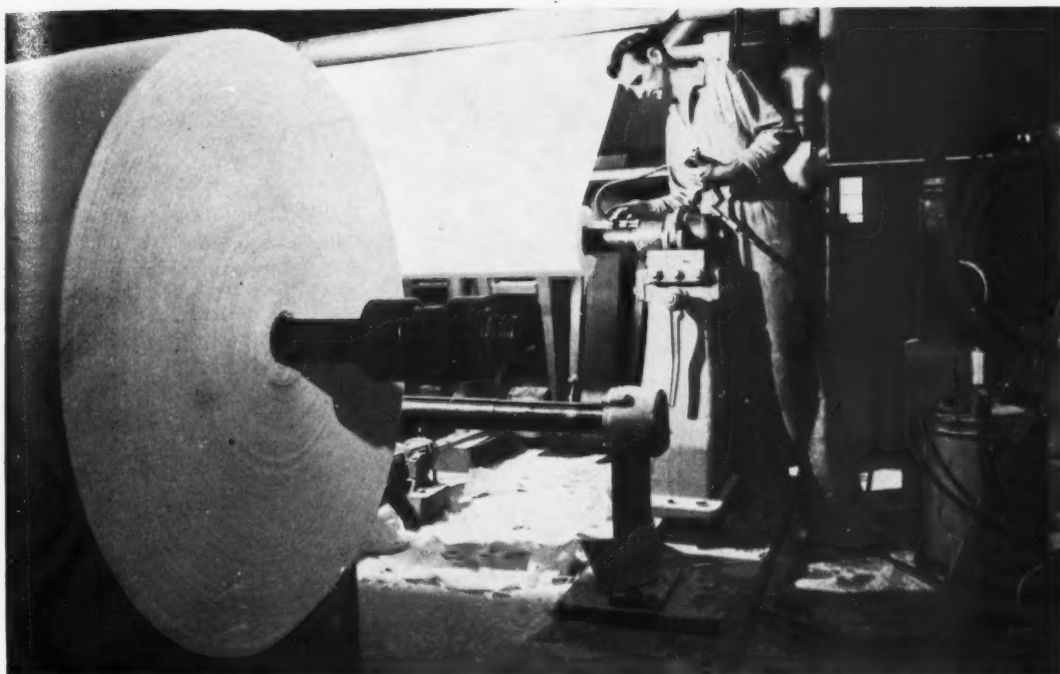
Write for detailed information

**SMOOT-HOLMAN** Company  
ESTABLISHED 1915



Inglewood, California 

... for more details, circle No. 33 on Reader Service Postcard



*MAINTENANCE MAN lubricates papermaking machine at Pacific Coast Paper Mills, Bellingham, Wash., using Standard Oil Co. of California, Chevron Duraplex grease. Typical of trend towards standardization of lubricants this one grease replaces five other greases previously used on 40 different papermaking machines and a large system of conveyor belting.*



## A SPECIAL REPORT

# PLANT MAINTENANCE & ENGINEERING

A report especially designed to give you information on trends and new techniques in maintenance and plant engineering in the West.

**P**LANT MAINTENANCE is an area where many Western plants are at a disadvantage when compared to eastern plants. True they are not faced with such problems as snow removal and severe winters, but modern maintenance methods are more easily adaptable to large plants than to small or medium sized ones. The problem has certain similarities to another problem of many Western plants, that of efficient limited quantity production as against mass manufacturing.

Here is what has happened. Maintenance departments in recent years have had to cope with main-

taining both plant equipment and manufacturing equipment, that is becoming highly specialized. Computers are one example. Our scope of knowledge has increased rapidly, bringing with it new materials and new methods. These have been incorporated into our equipment and this new equipment constantly requires more specialized knowledge and tools to maintain.

Coupled with this is the trend in maintenance equipment itself. Maintenance equipment has been mechanized and power applied to equipment formerly handled manually. By efficient scheduling of work and reducing labor costs this equipment is paying off.



*POWER SWEEPERS are not only suitable for inside the plant; they may be used to sweep exterior as well. Here same Wayne sweeper as shown on front cover cleans drive in front of Otis Elevator Co. plant in Los Angeles.*

These trends in maintenance are ones that do not fully lend themselves to the many small to medium sized plants found in the West. In a large plant the needed specialists for complicated equipment can be justified. In a small plant this is difficult to do. In a large plant specialized maintenance equipment can be used. In a small plant its applications from a cost saving standpoint are more limited.

Coupled with this trend to specialization is another trend. Maintenance costs are rising constantly. Factories are paying considerably more to maintain their equipment than they did only five years ago. Part of the reason for this is that present day equipment is more automatic and intricate and thus more costly to maintain. A second item is the rising cost of labor. It has been estimated that labor represents up to 90% of the total maintenance cost.

There are ways for a small to medium sized Western plant to improve its maintenance and at the same time check rising maintenance costs. With the high cost of labor in maintenance, labor must be used more efficiently. In addition the maintenance force must be upgraded to compensate for specialization. Another solution is to rely on outside specialists for certain jobs. Finally, as regards equipment, many Western plants are behind in adopting mechanized equipment for maintenance work. While it is true that mechanized equipment does not lend itself as well to small plants as to large ones, it is also true that it can often be justified for small plants on a cost saving basis. As an example take power sweeping equipment. A large eastern plant with several hundred thousand square feet of open space can easily justify one or more highly mechanized large power sweepers. But power sweeping equipment comes in all sizes and in a small plant a smaller piece of equipment will often pay for itself when considered from the standpoint of labor hours saved. In a small Western plant if it takes one man eight hours to hand sweep the open areas and a small power sweeper an hour or two, then each day

represents a labor savings of at least six hours of labor that can be applied against the usable life of the power sweeper.

This means that small Western plants can often cut costs by going to power and mechanized equipment for maintenance. The procedure is not easy as in a large plant for costs must be justified more closely, but this area represents one method of savings of which Western plants have not taken full advantage.

Maintenance planning is used effectively by large plants as a cost cutting tool. Detailed pre-planning and scheduling of work has increased maintenance efficiency tremendously. This planning extends into all fields. Large firms now plan and survey the various tools needed and save money as a result. They plan lubrication procedures and attempt to standardize as much as possible on lubricants. Such surveys are not as easy to make in smaller plants with more limited personnel but they should be considered. Despite a plant's size the key to maintenance efficiency is planning. Here planning can take into consideration the one advantage that is inherent in all small plants, that of flexibility.

Maintenance has become more closely associated with production in one respect. The spending of money is necessary to save money. Up grading maintenance personnel costs money but will save money in improved maintenance. Purchase of mechanical equipment to reduce maintenance manhours of work is another example.

Too often manufacturing executives overlook the fact that plant maintenance is basically a money saving device and consider it a necessary but undesired expense. Poor plant housekeeping, dirt, dust, etc., reduces machine life. When coupled with poor lubrication policies these can reduce the useful life of a production machine as much as 25%. On the other hand, good maintenance and with it a clean attractively kept plant will actually increase production efficiency.



**AUTOMATIC EQUIPMENT** lays cleaning solution, scrubs floor, vacuums dirty solution and dries floor in one operation. This Advance Floor Machine distributed by Easterday Supply Co. is battery operated and self-propelled at up to 185-ft. per minute.



## CLEANING

The first consideration in plant housekeeping is how clean do you want the plant to be. Naturally this varies in different industries. A general trend in the West however is towards increasing cleanliness. This is partly due to the predominance in the West of such industries as electronics, missiles and food processing. It is also due to an increased recognition that clean working areas increase worker morale, help improve quality of work, and indirectly tend to increase production. There is also a recognition that dirt harms equipment, especially equipment used for delicate close tolerance work.

One way to achieve a cleaner plant without increasing labor costs is through use of power cleaning equipment. For the plant area the usual technique is to outline the open areas such as aisles with a painted line. The worker on a machine can then clean his area around the machine and a power sweeper handles the open space. Note the Wayne power sweeper on this month's cover at Otis Elevator Co.'s Los Angeles plant. This 48-in. rider operated unit with automatic dumping and a three speed transmission is designed to cover about 110,000 sq. ft. per hour. The sweeper, which runs on propane gas to cut down in-plant fumes, is used both for inside and outside sweeping such as plant floor areas, driveways, parking lot, and shipping dock parking area.

The unit is used once daily in the late afternoon. Workers in non-accessible areas sweep non-metallic trash into the aiseways and it is picked up with the rest. It takes the operator less than an hour to completely sweep the plant which has a total area of 150,000 sq. ft., only one-quarter of which is mechanically sweepable. Sweeping speed is 10 mph maximum and traveling speed 15 mph. Using dual side brooms the sweeping swath is a full six feet. As a rule of thumb a maintenance man with conventional equipment can sweep from 1500 to 2500 sq. ft. per hour, the average being about 2000 sq. ft. hourly. The power sweeper

with one man can sweep 125,000 sq. ft. per hr. If a crew of men were required to sweep 125,000 sq. ft. daily it would take eight men working an eight hour shift or 64 hrs. Figure the daily cost of labor against the cost of the machine, and its maintenance plus one hour labor. It is obvious that considerable savings are involved.

In addition to sweepers there are industrial vacuums. These are available in shoulder models, walking types, and self powered units. Vacuum efficiency is constantly rising. There are power scrubbers of various types to take over mopping duties and polishers that come in different sizes. Polishers can be equipped with tanks holding wax that will spray the wax automatically in front of the polisher, eliminating a second operation. A similar tank for cleaning solutions is available for scrubbers. One of the newer pieces of equipment is the Advance Convertamatic. This unit in one operation wet scrubs floors, providing its own cleaning solution. It vacuum dries in the same operation. The unit can do 12,500 sq. ft. of floor area, of any type of floor, in one hour. It will also steel wool polish floor areas and automatically recover dirt and dust created.

This combining of more than one operation is something any plant can take advantage of, using even the smallest type of power equipment. The machine also highlights a growing trend in the West to scrub plant floors. A number of plants, especially in the electronic field, have started scrubbing the plant area for added cleanliness and elimination of dust. There is another Western trend, according to an authority at Easterday Supply Co., a San Francisco firm specializing in industrial cleaning equipment, that of cleaning the overhead part of the plant. Delicate equipment must be protected from overhead dust as well as that on the floors. For pipes, walls and window sills, industrial vacuum equipment is being used. Specially curved brushes are used to pick up dust on overhead pipes.

While power equipment has developed rapidly



*TYPICAL of the trend towards reduction of labor costs is this Cassidy Spray-O-Matic, which mounts on any floor machine and sprays liquid wax solution in 30-in. swath to clean and wax floor in one operation.*

there have been improvements in manual equipment too. Mops and brooms are being made of better materials. Bristles on push brooms have been developed from synthetic fibers which are impervious to oils and greases and don't mat.

Cleaning solvents are better too. The new detergents that many maintenance departments are using for mopping and scrubbing in some cases eliminate or minimize the need for rinsing. All types of cleaners

have shown a steady improvement in effectiveness through the years. While the trend is not new maintenance workers now use cleaning materials that contain disinfectants or other special purpose additives.

#### **PAINTING & PROTECTION**

The subject of floors comes up naturally when discussing housekeeping. It is also important in considering coatings and other types of protective measures of this nature. Statistics indicate that 61% of all plants have floor maintenance problems. Obviously the best way to handle maintenance problems is by elimination at the start. Floors should be carefully planned and installed in a new plant. By doing the job right to begin with, many of the headaches commonly associated with floors can be eliminated.

Almost all Western plants have concrete floors. Floors are seldom painted, however there is a trend to color them by adding a pigment to the concrete when it is poured. This method is inexpensive and tends to improve plant looks considerably.

A main problem with concrete floors is dusting. Not only does dusting create a dirty plant, but in many of our electronic and missiles plants it cannot be allowed. Liquid sealers are used on floors to reduce dusting to a minimum.

Another floor problem is chipping. This can often be controlled by the type of concrete floor laid, though in many cases it is not completely eliminated. Chipping usually happens in areas where there is heavy traffic or handling of heavy objects. There are several general ways to repair floors. A common method is to use any of a number of asphaltic type patching materials. These are often applied at night and the area is usable the next day. Recently epoxies have come to the fore and are being used with greater frequency for this. When applied correctly epoxies are extremely durable and are especially suitable for filling cracks. A third method is to pinpoint the high wear areas in the plant and lay down a non-slip steel floor plate such as Alan Wood Super Diamond. This latter procedure can be especially effective when taken into consideration in planning of a new plant.

Epoxies are constantly increasing in value as a maintenance material. Besides their use in repairing floor cracks, they can be applied as a floor covering material. The result is a floor that is particularly suitable for wineries and food processing plants in that it is acid resistant. In addition it is extremely durable, waterproof, weather proof, resistant to oils and greases, and can be made skid proof by light sand topping when spread. Other uses include repairing cracks in walls, resurfacing tanks, repairing broken concrete, or bonding concrete to existing concrete and even bonding metals to metals. As more uses are found the number of different epoxies have also increased. Sta-Crete for instance offers seven different types. In addition epoxies are now available in different forms ranging from liquid to semi-solid consistencies.

An example of the use of epoxy is in an industrial building in Redwood City, Calif., where in lifting a tilt up slab wall in place, it was cracked. Not only was cracking severe but there was bad spalling. The flaw was repaired in place by applying epoxy in the crack under pressure, a system developed by Structural Concrete Bonding Co., subsidiary of Adhesive Engineering.



Now it's **BORRMANN** for **TUBING** too

Seamless steel mechanical tubing in all normally-needed diameters and wall thicknesses is now stocked in our Oakland warehouse. Welded steel tubing—rectangulars and squares—available too. Phone us your next tubing order (as well as other steel). The bigger the rush the better to demonstrate our fast, dependable service.

## **BORRMANN for STEEL**

Cold Finish Bars, Hot Rolled Bars, Bar Size Shapes, Structural, Plates, Sheets, Drill Rod, Standard Black Pipe, and now **TUBING**.  
*Expert Sawing, Shearing, Burning Available for All Requirements*

**Geo. R. Borrmann Steel Co.**

25 - 8th Street, Oakland 7, California

Higate 4-1887



... for more details, circle No. 34 on Reader Service Postcard



*REPAIRING a sidewalk with epoxy is typical of many uses around plant for this versatile maintenance product. Here workers raise sunken section to surrounding level, using Concrete 1, product of Adhesive Engineering. Epoxy is brushed on well cleaned surface and new concrete troweled directly over wet adhesive.*

This method caused the epoxy to provide full depth welded penetration. To repair the spalling, epoxy was mixed with sand for grouting and applied.

A wide number of protective coatings and sealants are available on today's market. They all have uses. For a Western maintenance superintendent perhaps the most important problem is to select the best for the particular job at hand. Of interest is that such a variety are available. This is the result of new developments in recent years, and points up again the need for more specialized knowledge.

Pacific Sealants' Comtriband, for instance, is a compressible waterproof sealant used as a joint sealer in buildings for windows, doors, panels, expansion joints, etc. Under compression its cellular structure becomes water tight and bonds to contracting surfaces. The material has permanent resiliency and will return to original shape when confining pressure is released. It has physical stability under heat and cold and is resistant to chemicals, fumes, sound and vibration.

In the field of coatings for roofs, Flintkote's new method of spraying roofing compounds and chopped glass fibres by means of a gun has the advantage of cutting costs and at the same time providing versatility in the combinations of coatings that can be applied. Many Western plants are using larger sizes of stones and gravel for roofs. This is attractive and at the same time functional. The heat reflective roof coatings on the market are of also particular interest

to Westerners. Superior Paint & Varnish's White Top is an example. It is a white butyl rubber alkyd compound that both affords protection from deterioration and at the same time can cool building interiors off 15 degrees in warm weather.

Painting is an area which maintenance men attempt to reduce to a minimum by elimination of surfaces that require painting. The reason is that painting is a job that requires a large amount of hand labor in preparation and in painting. Most of the cost of painting is in the labor, and most plants still must do a considerable amount of painting. To save costs it is good maintenance procedure therefore to use the best paint available, one that will help extend the period of time between paintings.

Much of plant painting today is done on metal, particularly steel. In dealing with rust, there are a number of preventive coatings available. These include alkyd paints for weather exposed areas, phenolic paints that give protection in areas of high humidity, chemically resistant paints which give protection under severe conditions, and oil based paints, such as Rust-Oleum. This latter type has a dual advantage in that it resists weather exposure and at the same time requires limited preparation prior to painting.

#### **LUBRICATION**

Most Western plants follow a policy of preventive maintenance, based on regular intervals of inspection, lubrication, and repair. In the field of lubrication there have been a number of important advances, advances





**ANACONDA  
WIRE & CABLE  
IS MADE IN THE WEST TO FIT THE NEEDS OF THE WEST**

**FROM ORANGE, CALIFORNIA MILL...**

A full line of wire and cable is ready to go to work for utilities, contractors, electrical manufacturers — all of Western Industry.

Fast, efficient service directly to you, from nearly 100 Western Anaconda Distributors...

**FROM REDWOOD CITY, CALIFORNIA MILL...**

A wide range of highly specialized products meets the exacting needs of the electronics and missile industries. This new Anaconda facility, the Sequoia Wire & Cable Company, rounds out Anaconda's complete wire and cable service to the West.

Call the Man from Anaconda at Sales Offices in Denver, Los Angeles, San Francisco or Seattle. Or see your local Anaconda Distributor.

61371

ASK THE MAN FROM  
**ANACONDA®**  
COPPER AND ALUMINUM WIRE AND CABLE

... for more details, circle No. 35 on Reader Service Postcard



**REPAIRING CRACKS** in stucco wall, maintenance man uses bonding material called Tuff-Kote and Glass Fabric. Here after swabbing crack with bonding material the fabric is unrolled and a second and final coating applied. Patch is invisible when painted.

that can not only save money by increasing equipment life but reduce lubrication costs.

There are two trends in oils and greases, which though they may seem to be in conflict are not actually so. One is a trend towards standardization. Oil companies have developed a number of general purpose oils and greases. The advantages of a standardized lubricant are many, easier ordering and storage, a reduction in the number of lubricants carried by the oiler, a chance for centralized lubrication systems and less chance of mistake in using the correct lubricant. The usual procedure is to survey the items needing lubrication and to standardize as much as possible on both an oil and a grease.

The second trend is to highly specialized oils and greases to solve extreme problems. The oil industry has been very successful in recent years in solving many tough lubrication problems. Thus though a general purpose plant lubricant can usually be found, there will always remain a number of lubrication problems that are solved only by special purpose lubricants. Selection of the correct lubricant for these difficult ones is important in that it reduces maintenance costs by increasing machinery life and reducing frequency of repairs as well as extending time between lubrications.

In the West a trend is starting towards centralized lubrication systems. This publication several months ago reported an installation of this type in a Southern California cement plant. With centralized lubrication system piping runs to various points on machines and equipment throughout the plant and these are peri-

odically lubricated automatically. There is similarity between this and the providing of plant air, and it is reasonable to believe that we will see increased use of centralized lubrication in the future.

## TOOLS & PARTS

Basic equipment for all maintenance departments are the tools used for repair. Here again is an area where Western plants can do more to cut costs. Cost of hand tools and their annual replacement mounts up to a sizable figure during the course of a year. Snap-On Tools has some excellent advice that deserves to be followed by Western plants. Make a tool survey. Go over the various jobs that have to be done on a fairly regular basis. Determine what tools are needed and determine if these tools are the most suitable of those offered. Determine too, what further tools will be needed on a more infrequent basis. When this is done make up two lists. One list will consist of a basic selection of tools for each repair man. This might vary as to the man's duties but it would be basic for him. When this is done provide him with those tools. From the second list of tools used infrequently, see that they are available in the maintenance department in a centralized area so that they can be drawn out and returned. Regularly check the maintenance men's tool boxes and repair or replace missing, worn or broken tools. Tool loss can be regulated by a set of rules requiring the maintenance man to compensate for missing tools. By using the proper tools for the job, tool breakage is reduced and job time reduced. One example of incorrect usage is placing a hand socket on a power wrench.

Tools, both hand tools and power tools, are following the trend to specialization. There is increased demand both for larger tools as equipment becomes bigger and heavier and for smaller tools as more elec-

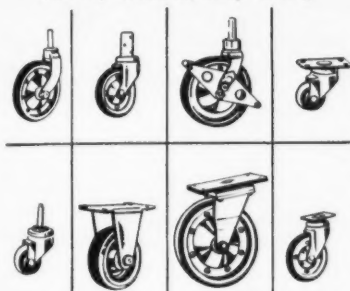


**WORKER SPREADS** white heat reflective roof protective by Superior Paint & Varnish Corp. called "White Top." This butyl rubber alkyd compound is said to impregnate and become part of roof, extending roof life four to five years as well as cooling interiors up to 15 degrees in warm weather.

**in stock  
ready for  
immediate  
delivery**

## CASTERS • WHEELS

smooth, noiseless, easy rolling



a complete line of 1458 casters

## TRUCKS



188 types of hand trucks  
and platform trucks

all stocked in California  
all serviced by engineers

# COLSON

CASTERS • WHEELS • TRUCKS

Colson Equipment & Supply Co.

LOS ANGELES 13 1317 Willow Street • MA 2-2422  
OAKLAND 7 350 Tenth Street • TEmplar 2-3554  
SAN FRANCISCO 5 544 Second Street • GARfield 1-0280  
... for more details, circle No. 41

WESTERN MANUFACTURING/JUNE 1961

# It Pays to Have **GOODALL** *Quality in Every Hose You Use*

Trust Goodall craftsmen to build into every length of hose they make, the extra measure of strength and durability that means longer, more reliable, more economical service. Here are some leaders in the line you can use with **profit**.



**STEAM.** "Inferno"—The best-known hose in its field for all high-pressure, high-temperature applications, including steam cleaning, degreasing and fire smothering.

**AIR.** "Brown Cord"—for all types of pneumatic tools. Lightweight, flexible. Tough, wear-resistant cover. Oilproof tube.

**WATER.** "Cloverleaf"—the best all-round water hose you can buy for mill and factory service. Available in lengths up to 500 ft.

**GENERAL-PURPOSE.** "Allserv"—for practically any job in your plant—air, water, gasoline, oil, mild chemicals, paint spray, welding.

**HYDRAULIC.** Goodall Hydraulic Hose will give outstanding service on your high-pressure control lines, greasing equipment and constant feed lubrication systems. Available plain or as complete Hose Assemblies.

### HOSE FOR SPECIAL SERVICES

PAINT & VARNISH SPRAY  
HIGH-PRESSURE SOLVENT  
ACID • BEVERAGE • AMMONIA  
GREASING • WELDING

**"If it's GOODALL, it MUST be Good!"**

Contact Our Nearest Branch for Details and Prices

Manufacturers of Mechanical  
Rubber Products—Since 1870



Standard of Quality HOSE • BELTING • FOOTWEAR  
CLOTHING • EXPANSION JOINTS • PACKINGS • LINERS, ETC.

# GOODALL Rubber Company

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N.J.  
Branches and Distributors Throughout the United States and in Canada



*UTILITY VEHICLE, model 780 Cushman Truckster moves maintenance men and materials around Pacific Motor Trucking Co., Portland, Oregon freight terminal. Unit is valuable in that it cuts non-productive time of maintenance personnel.*

tronic equipment and miniature items are used in plants. With these trends, Western plants will experience constant rise in need for special type tools. To keep tool costs down they should be controlled using a plan to determine use and avoid needless duplication.

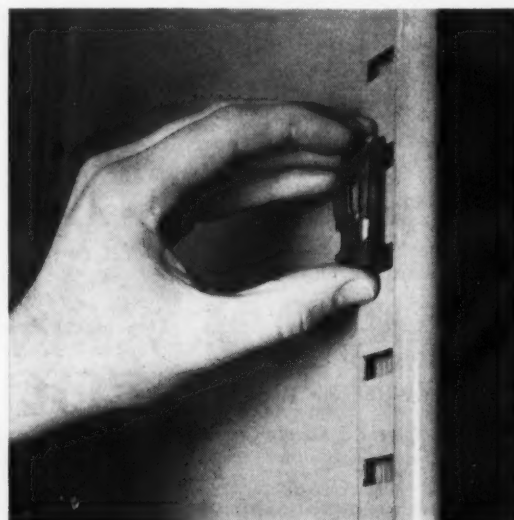
Tools are basically work saving devices. With labor costs high, it does not pay to purchase poor tools. Not only will there be excessive breakage and an increase in accidents but using good tools can reduce job time.

Power tools are increasing in importance for Western maintenance departments. A careful selection of power tools is an inexpensive way to reduce labor time. One such item is Milwaukee Electric's new hand power jig saw, called Sawzitt, designed especially for low speed metal cutting. When used in place of a hacksaw it can materially speed up work.

Spare parts are always a problem in maintenance. The question of what to stock and how large should the stock be is a difficult one. On one hand is the loss of production when a part is needed and not available; on the other hand there is the large amount of money that can be tied up in stocking many parts. The solution is usually a compromise between the two,

stocking the most used and vital parts and taking a chance on others.

One aid to reducing the parts stock is by standardizing. This can be done by standardizing as much as possible on motors, machinery and fixtures. An interesting statement has been made recently by R. E. Thomas, vice president, Cleveland Cap Screw Co., SPS. He says that a hex cap screw can do the job of



**DEVELOPMENT IN SHELVING** is Columbia-Hallowell Div. SPS new Erectomatic clip type. Double grip clips eliminate shelf wobble and support heavy loads. Key feature of line is flexibility clips give in spacing shelves.



NINE WESTERN WAREHOUSES



*Call the specialists for*  
**STAINLESS**  
**STEEL** *service*

*Specialists for  
EVERY service in*

# STAINLESS STEEL!

**SPECIALISTS** in stainless steel exclusively.

**SPECIALISTS** in meeting *your* requirements for stainless sheet, plate, tube, pipe, bar, rod, wire, billet, valves, fittings, fastenings, or PVC.

**SPECIALISTS** in making *your* deliveries promptly from the convenient stocks in nearby warehouses.

**For Example: ESCO** has one of the most complete stocks of stainless bar in the West in a full range of alloys and sizes.

**SPECIALISTS** in metallurgical know-how equipped with industry's most modern laboratory facilities to help solve *your* special problems.

**SPECIALISTS** in producing *your* stainless and high alloy steel castings.

**CALL**



**LOS ANGELES 22, CALIFORNIA**  
6415 E. Corvette Street...RAYmond 3-8601

**SAN FRANCISCO BAY AREA**  
Emeryville 8, California,  
1280 65th Street.....OLympic 4-2732

**PORTLAND 10, OREGON**  
2475 N. W. Vaughn St....Capitol 6-7341

**EUGENE 4, OREGON**  
1464 W. 6th Street.....Diamond 3-2585

**DENVER 7, COLORADO**  
3940 Grape Street.....DUDley 8-5901

**SEATTLE 4, WASHINGTON**  
1131 W. Hanford Street....MAIN 3-4160

**SPOKANE 13, WASHINGTON**  
N. 1327 Washington St...FAirfax 5-4507

**HONOLULU 5, HAWAII**  
630 South Queen Street.....6-6186

**ESCO LIMITED, VANCOUVER, B. C.**  
8425 Ontario Street.....FAirfax 5-2288



either a hex bolt or a hex screw, but that neither of them can be substituted by a hex cap screw. In comparing price of the hex cap screw with the other two, for most sizes 1-in. x 8-in. and under they are the same. Here then is an excellent area where standardization of parts can be achieved.

In recent years there has been an awareness that maintenance time can be slashed with portable equipment. A wide variety of equipment has been developed. For instance there are small powered carts for maintenance personnel which are handy for traveling long distances in spread out plants. They are also handy to transport special equipment such as portable welding machines. For maintenance repairs on equipment up high or replacement of lights and cleaning, a number of platforms are available. These vary from simple scaffolds to hydraulic lifts that are often self propelled. Here again this equipment is valuable to Western plants and should be considered if it will pay for itself in reduced labor costs.

#### **PLANT FURNITURE AND STORAGE**

Plant furniture, desks, work benches, racks and bins have all been made with one thing in common, flexibility of use. This is one area where standardization has been applied to the product. Work benches for instance are often made up of variations of standard component parts and can be altered depending upon purpose. Racks and bins are much the same. Modern Western manufacturing demands good storage facilities. It also requires flexibility since what may be a permanent installation today might be altered considerably by changes in design and new items introduced into the line. For this reason manufacturers are seeking storage equipment that is inherently flexible in shelf heights and widths. They also want equipment that is easy to assemble and disassemble. This equipment is available. The problem lies more in the individual planning of storage facilities and the adoption of the specific equipment that most nearly suits that plant's need.

There are two trends in this field. One is to the use of a wider variety of colors in plant furniture and storage equipment as Western plants start to get into color schemes for floors and machinery. The other, an especially important one in the West, is the increased need for storage of small, usually delicate parts. One solution is offered by Hollywood Plastics Modubox system. At Viking Corp., Newbury Park, Calif., these plastic boxes slide into adjustable floor to ceiling racks, with lips on the boxes fitting cleats on the racks. The boxes can contain dividers, insert trays and covers as desired.

#### **COMMUNICATIONS**

As Western plants grow in size one of their first needs is for improved communication equipment. Like so many items communications are better when carefully planned at the time the plant is being built. There are three basic types of communications used in Western plants, telephone, radio and television.

The planning for a telephone system for both internal and external use should start at the time the plant is built or an expansion contemplated. To aid in solving plant needs, Pacific Telephone and other Bell system companies in the West have a free consultant service. A wide assortment of equipment is



*MODULAR DIAL PBX model 756 telephone unit features a console instead of switchboard. While extremely compact the unit still has a capacity of handling up to 60 extensions.*

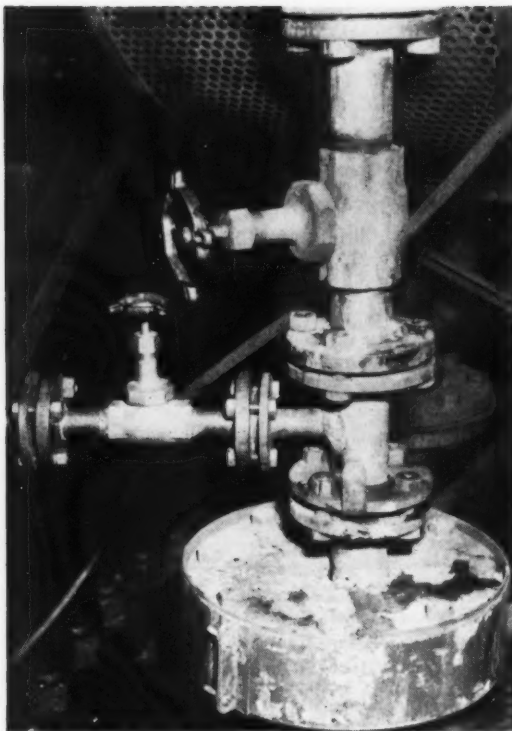
available that can be tailored to individual plant needs, both present needs and those anticipated for the future. These include: automatic answering equipment; a compact Call Director that takes the place of a small switchboard; conference equipment, which allows connection between two outside lines and three inside lines, or five inside lines; Data phone, which allows machines to talk to each other over ordinary telephone lines; key telephone systems that provide multiple lines at push of a button; local private line service, a voice circuit between two or more key points within an exchange; Modular dial PBX system using a space saving console instead of a switchboard; automatic call distributor for plants handling large volumes of inquiries; private branch exchange with automatic 120 line capacity switchboard; private line teletypewriter service; explosion proof telephones for use in combustible areas; wide area telephone service.

Radio has had its greatest use in plant communications in the area of dispatching or in-plant paging. With radio, fleets of fork lift trucks and other vehicles can be controlled with efficiency, eliminating unnecessary time between use on the job. Motorola, for instance, has come out with a new pocket transmitter so that now allows two-way communications with compact carrying units.

Industrial television is being used in Western plants. Its uses are still of a special purpose type such as a camera in a chute with the receiver near the operator to detect stoppages in the chute. One possible plant use is in rapid communication of letters, records or blueprints from a centralized record storage department.

#### **HEATING, VENTILATING, LIGHTING**

The trend is to plants with better lighting and



*STEAM affects all parts of valve but focal point is valve seat and disc. These Lunkenheimer LQ600 valves using Brinallloy seats and discs have cut frequent maintenance repairs.*

more effective control and conditioning of plant air. In lighting the West is more alert to advantages of increased candlepower and in general Western plants provide more illumination than those in the east. Despite this, according to a Sylvania expert, the Western trend is to still better lighting. This is because many plants here have small intricate assembly problems. One effective type of lighting for this is fluorescent lighting. A development is fluorescent tubes of the same size that produce some 30% more light. Another development is in panel lighting. General Electric has brought out a fluorescent light in the shape of a square panel with a waffle pattern on its face. The panel compresses a five foot long arc into a one foot square. Using these panels in large blocks tends to give an extremely even distribution of light.

The West is moving closer to complete control of in-plant air. Many Western industries have been forced to install high efficiency systems to eliminate dust and dirt in production and assembly. These localized areas are called clean rooms. However as more and more delicate assembly jobs are added, the problem of air control is becoming generalized. Plants are filtering and electronically cleaning incoming air. Air temperature is also becoming important. While most plants are not air conditioned, there is a move in this direction. Roylyn, Inc., Glendale manufacturer of aircraft and missile components, recently installed an air conditioning system in their plant.

The growing pressure throughout the West to control industrial air pollution is making itself felt. There is a relation between in-plant air control and air pollution. In many cases where dust and fumes are to be controlled they must first be localized and collected in the plant. The trend in air control is towards a purification before it is used and decontamination before it's released.

One air conditioning technique that is gaining recognition is the use of refrigeration equipment that operates on high input voltage. In an industrial building in Albuquerque, New Mexico, more than \$20,000 was saved by installation of two 250 ton American-Standard refrigeration machines that operate from a 4160 volt system. The savings were by elimination of transformer capacity for the compressors and reduced wiring costs.

A heating principle gaining popularity in the West is the use of localized heat. This provides quick heat where needed and reduces waste heating losses. At Louis M. Martini Winery in the Napa Valley, Apexro Infratube zone-controlled heaters are used to maintain temperature consistent with the cool moist needs of wine, yet keep the labels on the bottles intact.

#### **PIPING, VALVES, FITTINGS**

Pipe has been upgraded over a period of years, as manufacturing processes have improved. There has been a rise in bursting pressures and in general quality. This had led to increased use of welded pipe for applications formerly reserved for seamless pipe. At the same time we have seen the introduction of a number of coatings to improve pipe resistance against corrosion and scale deposits.

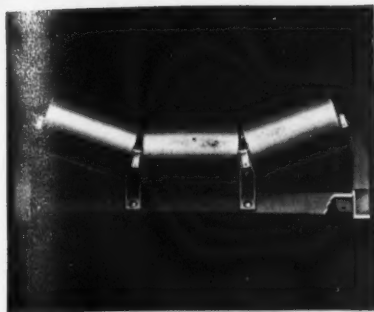
As pipe has improved so have pipe fittings and the means of connecting pipes. In water pipe casting tolerances now permit joining of two pipes using a neoprene gasket. This has speeded up laying of this pipe so that it can be done almost as fast as the sections can be brought into place. Another development of aid to maintenance personnel is a pipe joint made by Marmon Div., Aeroquip Corporation that requires no threading, grooving or flanging. The pipe is cut and the joint slips over the two ends. It is tightened to a sealed condition by a nut and bolt assembly at each end.

Desirable qualities for valves are long foolproof life with little maintenance and, when needed, ease of maintenance. Valves are usually installed in highly permanent plant installations, installations that are expensive to disassemble or break into. As such, valves that do not hold up create a repair expense out of proportion to their cost. Many valves must operate under difficult conditions of high heat, high pressure or highly corrosive contents. Valve manufacturers have developed a number of materials resistant to these conditions. Closer tolerances also provide a more effective pressure and temperature seal. To solve the problem of valve maintenance the Crane line of ball valves is designed with a tapered cartridge that contains the entire seating assembly. This may be removed easily for cleaning and repair, while the valve body remains in the line.

#### **TANKS, BOILERS, COMPRESSORS**

Of vital importance to tank life is protection against





## Jeffrey Permaseal® Idlers selected for Ko-Cal Roughloader



Koehring Company of California builds this Ko-Cal Roughloader to quickly and efficiently handle the largest loading jobs. It's being used extensively for low-bank borrow pits, highway cuts, mine stripping, and in use by top-soil dealers. Top capacity of the Roughloader is 1 yard per second. It moves sticky or rocky materials that tend to bridge and so cannot be efficiently handled by a feeder-type loader.

The practically maintenance-free service of these portable units depends in large part on the ability of Jeffrey Permaseal Idlers to help carry the load. Permaseal Idlers' unique double-seal design proves ideal for installations like this—where

dust and dirt could create a real problem. On job after job, Permaseal Idler design protects bearings as they've never been protected before—stretches greasing intervals to years.

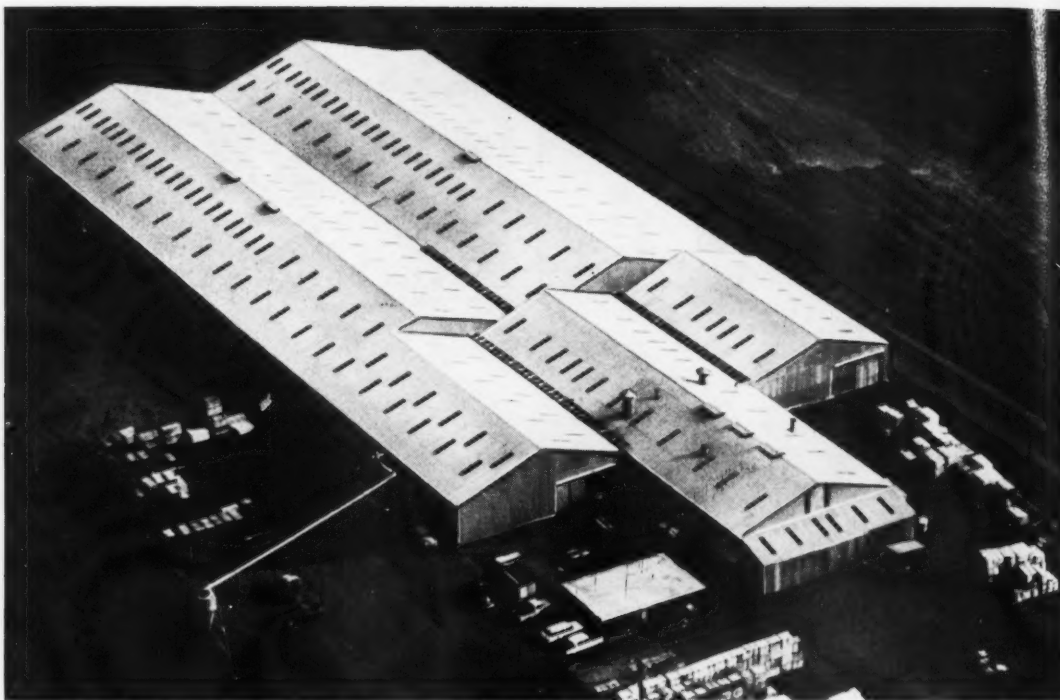
Complete information about how you slash direct and indirect costs with Jeffrey Permaseal Idlers is available in Catalog 925A. For your copy, write The Jeffrey Manufacturing Company, 920 North Fourth Street, Columbus 16, Ohio.



*If it's conveyed, processed or mined, it's a job for Jeffrey.*

Burlingame, California • 1862 Rollins Road • Telephone OXford 7-5303

... for more details, circle No. 39 on Reader Service Postcard



*AERIAL VIEW of Coquille Valley Lumber Co.'s plywood plant, Albany, Oregon. Firm planned expansion of plant using Soule Steel structures. Plant shown is actually result of four separate additions.*

corrosion. In this field there has been much activity. Any number of coatings are being used including epoxies. Columbia-Geneva Division, U. S. Steel this April announced that as a result of research and development they could now line large wine storage tanks with very thin stainless steel sheets. The linings are applied in the field after tanks are constructed from regular carbon steel.

Another development is a new liquid processing or small storage tank having an overall length of 24½-in. and an inside diameter of 7-in. The tank has a bursting strength of 500 psi and is made of a seamless plastic inner shell and an outer shell of aluminum. Made by Bruner Corporation, it is used for acids and other corrosive liquids.

Boilers are continuing a trend to compactness. At the same time efficiencies are remaining high and being improved. Packaged units make for ease of installation and lower costs.

In compressors there is a definite move to rotary design. Rotary compressors such as those made by Davey have reached a high standard of reliability since solving the problem of blade life. This type of compressor has few moving parts and maintenance is substantially reduced. Other advantages include constant air flow, low cost installation and freedom from vibration.

#### **PLANT EXPANSION**

An industrial firm can expand its manufacturing facilities in three ways: build a new plant, expand its present plant or purchase a used plant and adapt it to product manufactured. Often the decision as to which

path to follow is not an easy one to make. It takes a thorough analysis of problems and careful planning to determine the most profitable course.

New plants are obviously the most efficient from a production standpoint. Experiences learned in the past can be incorporated into them and modern plant equipment used. These tend to make a new plant mechanically more effective as to both production and maintenance. One important point to remember is that if the new plant is being built any distance away from the old plant and you expect to use present plant personnel, you may lose some of your best men and incur the cost of acquiring and training new men.

Expansions of present plants can be effective if carefully planned. If planning has been poor the cost may be excessive, and the production efficiency drop due to poor layout. A planned or preplanned plant expansion where certain measures were followed when the plant was first built, is the best means. Remember that though labor costs have increased some 60% in recent years, material costs during the same period have risen only 25%. Thus it is cheaper to put in a slightly larger than needed sewer the first time than to have to replace it during expansion. The problem of adequate electrical system is important too.

Moving into a used plant can be less expensive than building a new one; however it requires thorough investigation. If plant facilities are inadequate, correction is costly. Remember that Western plants have improved considerably in recent years. Production needs have changed too. Demands on electrical systems have increased rapidly. If the old plant is inade-

## Thermovac<sup>®</sup> OFFERS YOU:

# 1

### SANITARY EQUIPMENT

- Stainless Pumps
- Tri-Clover Fittings
- Evaporators
- Stills
- Essence Extractors
- Process Vessels
- Heat Exchangers
- Stainless Tri-Clamp Fittings (shelf-stock)

# 2

### METALWORKING SKILL

- Custom-Built Equipment
- Fabrication in Stainless Steel and Copper
- Rebuilding of Existing Equipment

# 3

### ENGINEERING SERVICES

- Process Design
- Consultation

**Thermovac<sup>®</sup>** is located in the heart of the food producing country, and can answer your equipment needs.  
Write, call or wire today!

**Thermovac<sup>®</sup>**

P.O. BOX 209  
816 EAST HAZELTON AVENUE  
STOCKTON, CALIFORNIA  
PHONE HOWARD 6-4385

... for more details, circle No. 41

WESTERN MANUFACTURING/JUNE 1961

## LAMSON CONVEYING SYSTEMS

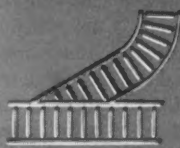
*FLEXIBILITY  
designed in...*



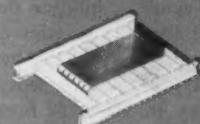
GUARD RAILS



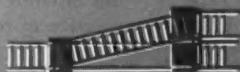
CONVERGING SECTIONS



SPURS



STOPS



PIVOT SWITCHES



*to move goods out!*

LET LAMSON ENGINEERS show you how the expert use of accessories can transform a number of stubborn conveyor units into a free-flowing, flexible conveying system.

Some of the LAMSON accessories are shown at left. But others like UPENDERS, ROLL-OVER FRAMES and DROP ROLL SECTIONS must be designed and custom made by LAMSON for specific application problems.

And not one such problem has arisen during the past 80 odd years that LAMSON engineers could not solve. They're justly famous for providing efficient, complete, "Turn Key Jobs."

Check LAMSON for advice. Send for the new conveyor catalog today. Write 556 Bryant St., San Francisco 7, California.



GATES



THREE RAIL SECTIONS



TURNABLES



PIONEERS the Conquest OF INNER SPACE

## LAMSON CORPORATION

PLANTS IN SYRACUSE, SAN FRANCISCO AND TORONTO, CANADA • OFFICES IN ALL PRINCIPAL CITIES

Manufacturers of Airtube<sup>®</sup> (Pneumatic Tube Systems) • Integrated Conveying Systems • Pallet Loaders • Selective Vertical Conveyors • Bookveyors<sup>®</sup> Clinical • Trayveyors<sup>®</sup> • Food Service Systems • Blowers and Exhausters • Exidust<sup>®</sup> Central Vacuum Cleaning Systems • Dryset<sup>®</sup> Air Vacuum Systems

... for more details, circle No. 42 on Reader Service Postcard

quate in this respect it may not be worthwhile to purchase because of loss of production effectiveness.

One method of plant expansion that has found favor in the West is the use of pre-engineered buildings. Soule' Steel, for example, builds these structural steel buildings in their factory to desired specifications. The pieces are then hauled to the site and bolted together. Since much of the time consuming construction work is done in the plant prior to installation labor costs are reduced. These buildings are suitable both for additions to plants or for a new plant.

Butler Manufacturing Co. is another firm active in this field. This firm offers a line of pre-engineered aluminum buildings featuring pre-insulated aluminum panels which are available in a variety of colors.

Another advance in plant building materials is the development of long pre-stressed concrete buildings. Long concrete spans are pre-stressed two ways and because of this a concrete roof deck can be constructed that requires no membrane or special coating to make it watertight. At a cost of about \$1.00 per square foot more than conventional roofs this roof, including ramps, can be installed and made into a plant parking area. As the parking problem becomes more acute for Western industrial plants this new method of roof parking offers a practical solution. This year Telecomputing Corp. completed the first building in their new plant complex in Chatsworth, Calif., a 28,000 sq. ft. structure free of interior structural columns, that allows roof parking of automobiles.

A number of advances have been made in con-

struction materials, many of which are maintenance free or reduce construction costs considerably. Laminated wood beams are steadily improving in strength. They are less costly than steel and should be considered for certain types of buildings. Another wood development is a plywood construction panel developed by Georgia-Pacific Corp. that has a tough factory finish yet is the same price as unfinished plywood. In the plastic field controllable self-foaming polyurethane insulating and soundproofing is available. It can be sprayed on or poured in place. Rigid Koroseal vinyl electrical conduit is said to permit savings of up to 60% of installation costs of metal or fiber conduit, and is especially useful where unusual corrosive conditions exist. A new acoustical tile has appeared that is vinyl faced protecting against water damage and allowing easier maintenance. Fiberglass panels that are tinted and translucent provide light, yet are free from window maintenance problems.

A new method of installing electronic equipment, such as computers in data processing rooms, should be of considerable interest to Western plants. To eliminate cost of running wiring and provide easy accessibility to the many wires, a "floating floor" is installed. A series of die cast aluminum plates make up the floor. These are interlocked and rest on cast aluminum pedestals with steel footings, which are bonded to the floor by a special adhesive. Plates are covered by vinyl tile making up a solid floor. Plates, however, are instantly removable by a suction cup tool for inspection or repair of the complicated computer wiring.

The advertisement features a map of California with a triangle highlighting the Costa Mesa area. Cities marked on the map include San Francisco, Los Angeles, and Costa Mesa. A diagram shows a central point in Costa Mesa with curved lines representing delivery routes to various locations across the state, each marked with a truck icon. A train is also shown on a horizontal line passing through the state.

**No More Expensive "Fooling Around"**

**IMMEDIATE DELIVERY FROM WESTERN WAREHOUSE**  
*Right on your doorstep!*

METALAB'S NEW WEST COAST WAREHOUSE AND SERVICE CENTER IS THERE FOR FAST, EXCELLENT SERVICE AND DELIVERY OF METALAB LABORATORY EQUIPMENT AND FURNITURE. ELIMINATES FOOLING AROUND! SAVES TIME! SAVES MONEY! IT'S YOUR METALAB WEST COAST CENTER, 1331 WAREHOUSE ROAD, COSTA MESA, CALIFORNIA... SERVING 7 WESTERN STATES... convenient to Western Industry!

**METALAB** *Equipment Company*  
A Subsidiary of Crescent Petroleum Corporation

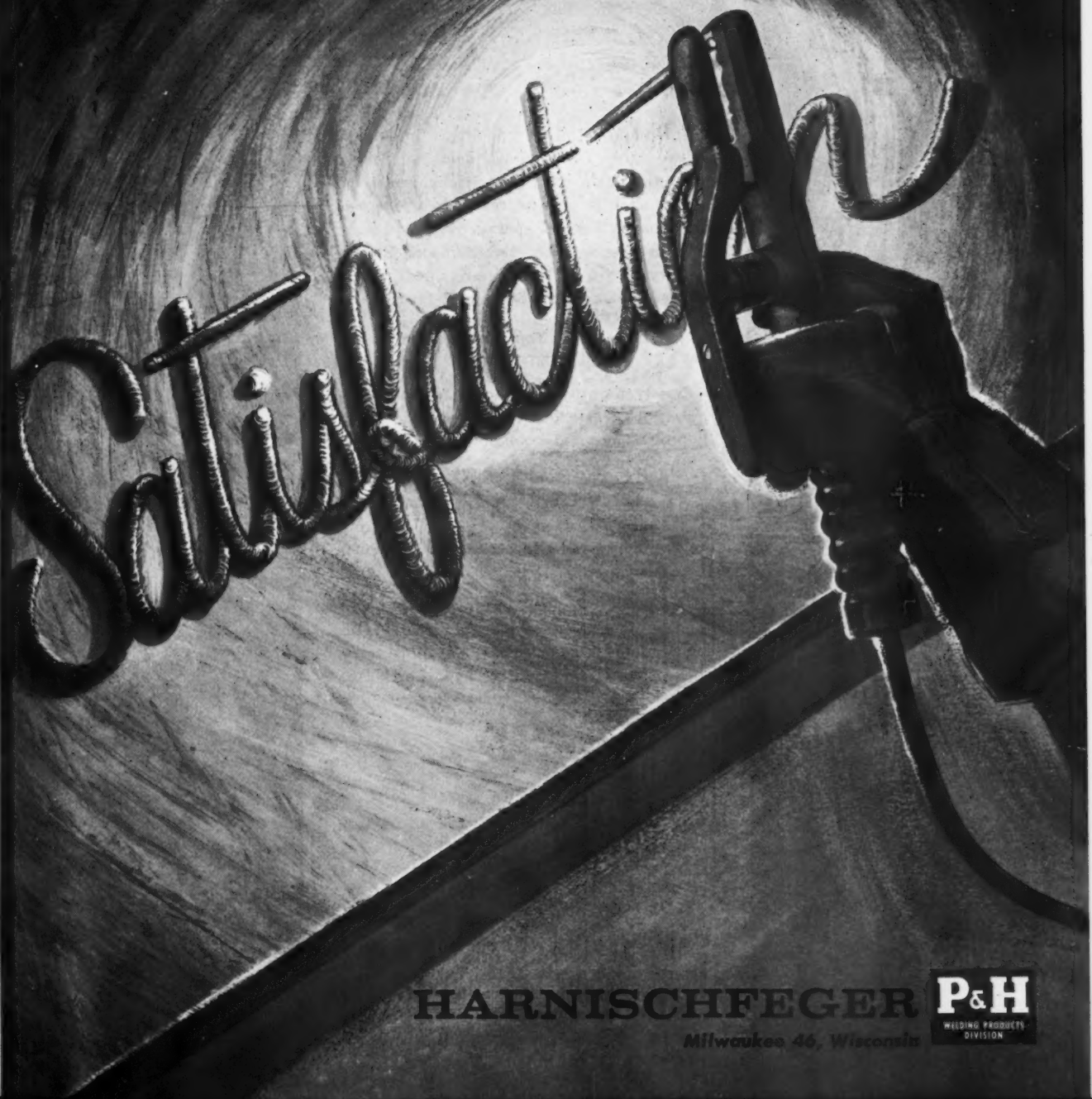
**MAIN PLANT AND GENERAL OFFICES**  
HICKSVILLE, L. I., NEW YORK

... for more details, circle No. 43 on Reader Service Postcard

WESTERN MANUFACTURING/JUNE 1961



Our most  
important product  
is built in your  
plant



**HARNISCHFEGER**

Milwaukee 46, Wisconsin

**P&H**  
WELDING PRODUCTS  
DIVISION

# NEW and REVOLUTIONARY..

## SLING CHAINS THAT TALK

The **WARNING RING\*** on Campbell **SENTRY SLINGS** tells you immediately when the sling has been overloaded . . . it elongates visibly . . . and before the chain itself is damaged.

*Your eye can see the difference!*

◀ Ring remains round  
Sling used properly

▶ Ring distorted  
Sling overloaded

New, revolutionary . . . Campbell **SENTRY SLINGS**—fully tested for over a year by foundries, steel fabricators and heavy equipment manufacturers, offer many important advantages. The **WARNING RING** is stronger than the chain itself. Yet it changes shape as the sling is overloaded . . . *before permanent damage occurs*. Repair is quick and easy, with a new **WARNING RING** replaced at the factory. Re-tested and re-certified Sentry Slings are again ready for regular service.

### Here's How You Benefit From New **SENTRY SLINGS**:

- Safety programs are easier to maintain—with the **WARNING RING**'s built-in safety that protects men and material!
- Lower repair costs give larger savings than ever—normally only the **WARNING RING** will need repair!
- Immediate visual evidence of overload means easier inspection—even while sling is in use!

**SENTRY SLINGS**, available in all types, are made from Cam-Alloy steel chain only and are available at no extra cost! All slings carry the Campbell Guarantee and Certificate of Test.



### CAMPBELL CHAIN *Company*

FACTORIES: York, Pa.; West Burlington, Iowa; Union City, Calif. WAREHOUSES: East Cambridge, Mass.; Atlanta, Ga.; Dallas, Texas; Chicago, Ill.; Portland, Ore.; Seattle, Wash.; Los Angeles, Calif.

\* Pat. No. 2966878



*TYPICAL of the exhibits at the Western Plant Maintenance & Engineering Show is this display of industrial pressure clamps and hose fittings by Band-It Company. Products not previously shown include 1/2-in. swivel adapter unions with NPT x JIG, NPT x SAE threads and NPT x JIC with O ring seal.*

## WESTERN PLANT ENGINEERING & MAINTENANCE SHOW

Your preview of what to look for at the Pan Pacific Auditorium, Los Angeles, July 18-20, featuring complete show information, conference program and a showcase of the exhibits.

**O**N TUESDAY, July 18 the 4th Western Plant Maintenance and Engineering Show opens its doors. Though this 1961 Show is the fourth of a series, it will be the first time that the Show has been held since 1957. The location is the Pan Pacific Auditorium, Los Angeles and the days are from July 18 to July 20.

Show hours are 12:00 noon to 5:00 P.M. on Tuesday and Thursday, July 18 and 20; and 12:00 noon to 9:30 P.M. on Wednesday, July 19.

The Show is designed to bring to maintenance and engineering personnel and plant manufacturing executives a chance to view new developments and the latest equipment in this rapidly changing field. Exhibitors are showing a wide variety of maintenance and plant engineering equipment.

The Show management suggests that those coming to view the Show take certain steps to get the full benefit. Plan to spend ample time for this is an

in-depth and diverse show and should not be seen "on the run." Come prepared with certain objectives. To do this survey your most acute needs in advance and know what you are looking for. Make your hotel reservations in advance. Los Angeles is a busy city and it is sometimes difficult to find accommodations on the spot. The Ambassador Hotel is headquarters hotel for the Show and Conference, or if you prefer you may write to the Los Angeles Convention and Visitors Bureau, 404 South Bixel Street, Los Angeles 54. Make your travel arrangements at the same time. Bring your associates with you if they can contribute to your coverage. Sometimes a team coverage can aid in producing cost saving ideas. Don't hesitate to ask exhibitors questions. Take full advantage of their services. For your own convenience fill out the rapid registration card found elsewhere in this magazine and send it in. It cuts down waiting time at the door and simplifies your entry into the exposition.



**HOLLYWOOD PLASTICS** will demonstrate their Modubox system for storage and protection of small expensive parts.



**KIMBERLY-CLARK** will tell about their new disposable shop towels and wipers using a portable cordless receiver.



**LINCOLN FLOOR MACHINERY** will demonstrate their line of cleaning equipment including the new Auto-Scrubber.

## PRODUCTS

Acme Steel will demonstrate their AIM slotted angle for use in plant erection of low cost storage racks.

American Pullmax will demonstrate their machine that does all necessary sheet metal cutting and forming required in plant maintenance work. Also shown will be X-8 Beveler that bevels plate from  $\frac{1}{8}$  in. to 2 in. prior to arc welding.

Aro Corp. will display their complete line of grease fittings, air tools and lubrication equipment.

Ballymore Co. is showing their mobile access lift and hydraulic lift work platforms. Also shown will be a line of step ladders.

Black & Decker will exhibit their line of electrical tools including nibblers, saws, and drills.

Breuer Electric is featuring the Trot-Mop, a new automatic floor squeegee for use on large vacuums. Also shown will be floor machines and vacuum cleaners.

Clements Manufacturing Co. is displaying their complete line of Cadillac vacuum cleaners and portable blowers for industrial use.

Collins Machinery is featuring their new Thred-O-Matic 23-A, pipe, conduit, and bolt threader that

handles material from  $\frac{1}{8}$  in. to 2 in.

Davey Compressor will exhibit new rotary, oil-cooled industrial air compressors for plant air requirements from 100 to 125 lb.

Easterday Supply Co. will exhibit and demonstrate the Advance Convermatic combination scrubber vacuum and the Wilshire Sweeper line of power sweepers.

General Electric will show a new Thermo-Tector system for positive protection against motor overload.

Hild Floor Machine Co. will display its line of explosive-proof vacuums, scrubbers, polishers, pickup blowers and other maintenance safety materials and maintenance supplies.

Hollywood Plastics is featuring their new Modubox system at the Show, a durable thermoplastic unit to protect small parts from shock, dirt, and other hazard during storage and assembly.

Kalman Floor Co. is a specialist in floor installation and visitors at the booth can learn about the various types of floors and floor surfaces available.

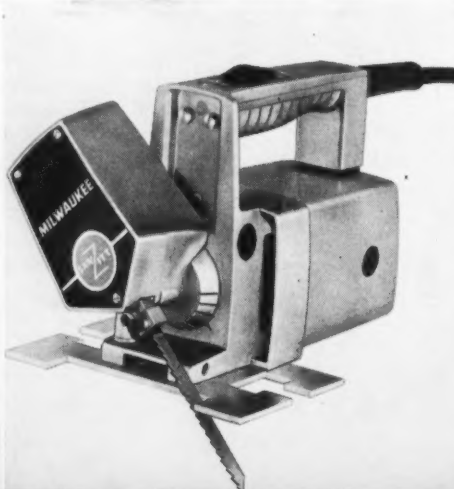
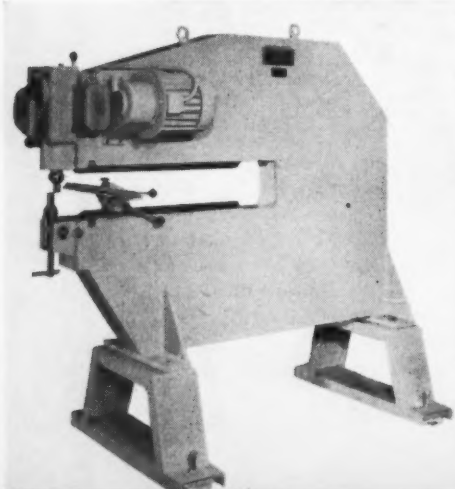
Kimberly-Clark is featuring a new disposable shop towel designed to cut costs of wiping cloth, laundering and losses.

G. B. Lewis Co. will display a complete line of plastic boxes suitable both for storage racks and general maintenance use.

**AMERICAN PULLMAX** will demonstrate their machine for maintenance departments that cuts and forms sheet metal.

**MILWAUKEE ELECTRIC'S** new jig saw called Sawzitt heads complete line of power tools for maintenance men.

**LUXO LAMP** is showing their line of desk and bench lamps and industrial magnifiers.





SEE THIS EQUIPMENT IN OPERATION IN BOOTH 323 AT THE WESTERN PLANT MAINTENANCE SHOW



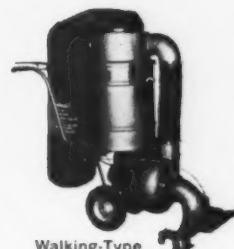
Automatic Floor Scrubbers



Steam Cleaners



Air Powered Wet & Dry Vacuums



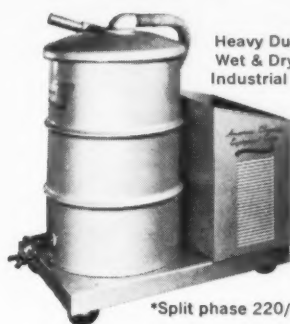
Walking-Type Gas Operated Vacuums



Traffic Line Markers

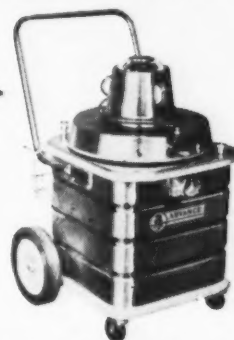


Shoulder-Type Vacuums



Heavy Duty Wet & Dry Industrial Vacuums\*

\*Split phase 220/440 V.



Commercial Wet & Dry Vacuums

## Featuring:

the west's most complete line of

**ELECTRIC • AIR • BATTERY • PROPANE • STEAM • GAS ENGINE**

powered industrial housekeeping equipment

Vacuums,  
wet and dry  
air powered  
electric powered  
gas engine  
powered

explosion proof  
stationary  
systems  
Floor Machines  
Floor Polishers  
Floor Scarifiers

Steam Injectors  
Sump Cleaners  
Automatic Floor  
Scrubbers  
Steam Cleaners  
Steam Generators

Rug Scrubbers  
Upholstery  
Cleaners  
Line Markers  
Power Sweepers  
Air Compressors

Pneumatic  
Conveyors  
Dust Collectors  
Industrial  
Detergents  
Cleaning Compounds



© 1958, Easterday Supply Co.

### EASTERDAY SUPPLY COMPANY

SAN FRANCISCO • Fell & Gough Sts.

Fresno • Oakland • Sacramento

PORTLAND • 1326 N. E. 63rd Ave.

Roseburg • Salem

LOS ANGELES • 901 East 61st Street

Long Beach • Palm Springs • Riverside

San Bernardino • San Diego • Santa Barbara

Orange County

Twelve Pacific Coast Warehouses Providing Everything for Sanitation and Maintenance

MAIL THIS COUPON FOR FREE CATALOG

EASTERDAY SUPPLY COMPANY

Catalog Office: Fell & Gough Sts. • San Francisco

Send me FREE Easterday Catalog. I also want

information on: ☐ Floor Cleaning ☐ Plant Areas

☐ Rest Rooms Other \_\_\_\_\_

Name \_\_\_\_\_

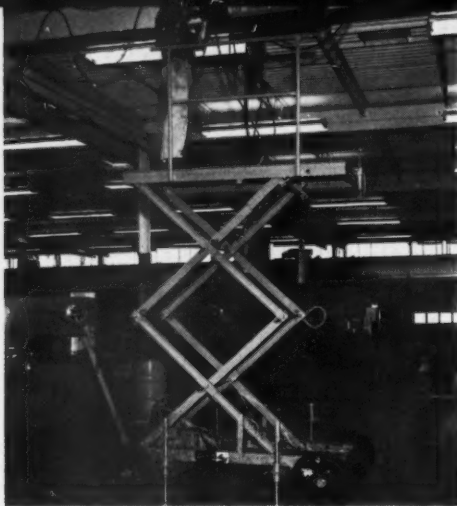
Firm \_\_\_\_\_

Position \_\_\_\_\_

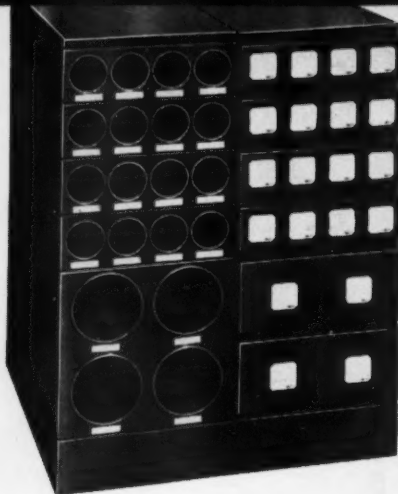
Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

... for more details, circle No. 45 on Reader Service Postcard



**WITCH MARKETING** is showing Sky Witch powered platform lift and Hot Witch roller for asphalt patching jobs.



**PLAN-HOLD** will have on display a full line of vertical and roll filing equipment for storing plans and drawings.



**TENNANT** model 85 power sweeper with side brush in operation. Booth will show full line of sweepers.

Lincoln Floor Machinery is displaying their complete line of floor equipment including a new battery powered Auto-Scrubber that spreads solutions, scrubs, rinses, picks up water and squeegee dries floors all in one single automatic operation.

Luxo Lamp is displaying an extensive line of industrial lamps including fluorescent, color corrected, and magnifying models.

Milwaukee Electric will demonstrate their new Sawzall for low speed metal cutting as well as many other portable powered tools for maintenance use.

Oakite is showing at their booth a complete line of cleaning materials suitable for all types of industrial cleaning jobs.

Plan Hold Corp. is exhibiting a new adhesive hanger for vertical filing of blue prints, as well as a full line of stacking and filing equipment.

Ridge Tool Co. will show a complete line of Ridgid pipe tools, including cutters, reamers, flaring tools, and pipe threaders.

Sylvania Electric will show its lines of lighting equipment including various types of lighting fixtures and lamps for industrial use.

G. H. Tennant Co. will show power sweeper and industrial floor cleaning machines designed to save man hours in cleaning open areas.

Toledo Pipe Threading Machine will show its full line of pipe threaders, cutters, splicers and other tools for working with pipe.

Tuff-Kote Co. is displaying two products used together to repair interior and exterior cracks, Tuff-Kote and Glass Fabric.

Turco Products is featuring a versatile cleaning compound, a safety solvent for electrical cleaning, a decontamination kit for radioactive materials, spray units, and a washer for cleaning storage tanks.

Union Wire Rope will display its machine-braided "Tuffy" sling, manufactured in 16 standard types and specials.

Wayne Manufacturing Co. will feature its power sweepers including models 703 and 706 on which six new improvements have been made.

Westinghouse is showing a hot water accessory tank that converts a regular pressure water cooler into a hot and cold refreshment center.

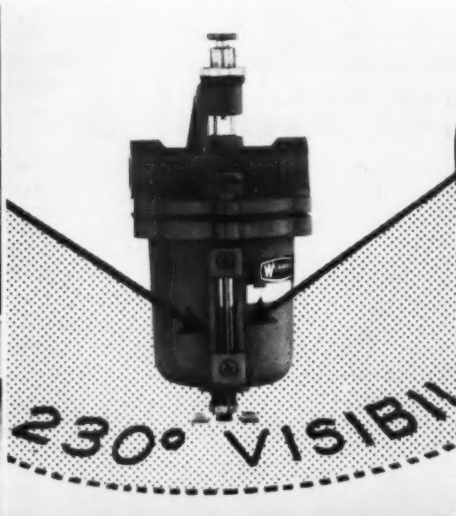
Wilkerson Corp. will exhibit their new compressed air filters and lubricators equipped with "Saf-T-Bowl." Content level in these new bowls is visible from a full 230 degrees.

Witch Marketing will show two key items, a small asphalt patching roller and powered platforms for maintenance use.

**WILSHIRE** power sweeper cuts cleaning and maintenance time. Complete line is at Easterday Supply booth.



**WILKERSON CORP.** is featuring compressed air filters and lubricators with new metal bowl and indicating gauge.

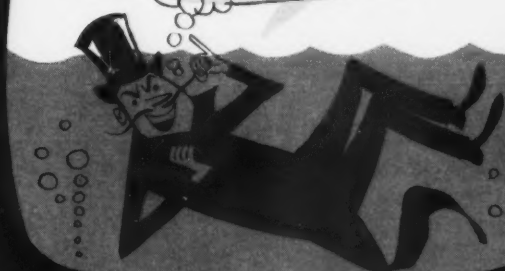


**RIDGE TOOL** chain wrench for use on pipe is one of items visitors will see at Show. Two models are available.



# IS THIS VILLAIN YOUR PROBLEM?

"HAH! I am a multivalent  
metallic ion suspended in your  
water. I'll downgrade your product,  
increase your costs and  
cut your efficiency!"



"Usual sequesterants just  
make me laugh...I am too  
tough for them."



"Curses! Foiled again—here  
comes my nemesis. He will  
tie me up for sure!"



## MORAL:

QUESTEX® polyamino—acid-based  
organic chelating agent

QUESTEX EDTA chelants have changed the whole water chemistry of multivalent metal ions such as Cu-Fe<sup>2+</sup>-Fe<sup>3+</sup>-Ca, Al, Zn, etc. QUESTEX will soften process water, tie up metallic impurities, remove and prevent scale, stabilize organic impurities, improve detergent action, improve dye baths, stabilize bleach solutions, activate rubber catalysts, separate rare-earth elements, chelate agricultural trace elements.

**A. R. MAAS CHEMICAL CO.**  
Division of Stauffer Chemical Company

4570 Ardine St., South Gate, Calif.  
Telephone: LUDlow 8-2214



If you suspect this villain, mail the coupon

**MAIL  
TODAY**

A. R. Maas Chemical Co.  
Division Stauffer Chemical Co.  
4570 Ardine Street • South Gate, Calif.

Please send me more information on Maas QUESTEX.

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

## CONFERENCE

THE WESTERN Plant Maintenance & Engineering Conference will be held on two days, July 18 and 19 concurrently with the Show. The Conference is designed to bring the current thinking of top authorities in the maintenance and plant engineering field to those attending. A wide variety of subjects will be discussed, and specific attention will be given to the applications of these subjects by Western plants.



*L. C. MORROW, nationally known expert on plant operation, will direct conference sessions.*

All conference sessions will be held at the Aero-Space Institute, 7660 Beverly Boulevard. This is located immediately on the other side of the Pan Pacific Auditorium parking lot.

Admission is paid registration only. The fee is \$10.00 for the entire conference.

L. C. Morrow, Program Chairman of the National and the Western Plant Maintenance & Engineering Conferences since their inception will again lead this year's conference. Morrow is an outstanding authority in this field and for some years has been a consulting editor for Factory Magazine.

### CONFERENCE SCHEDULE

#### TUESDAY, JULY 18

##### General Session (9:30 A.M. to 12:00 Noon)

An Organization for Managed Maintenance

Speaker—R. G. Keizur, Supt. Maintenance Planning, Kaiser Aluminum & Chemical Corp.

How We Organized for More Effective Maintenance

Speaker—K. L. Gibson, Supt. Mech. Div. Standard Oil Co. of Indiana

##### Concurrent Sessions (1:00 to 2:30 P.M.)

Preventive Maintenance, Using Data Processing Equipment

Speaker—Major J. D. Maher, Jr., ESC AMC, I. G. Hanscom Field

How to Get the Most Out of Your Electrical Power Dollar

Speaker—C. M. Cole, Dept of Power & Water, Los Angeles, Calif.

##### Concurrent Sessions (3:45 to 5:15 P.M.)

Controlling Industrial Air Pollution

Speaker—B. Linsky, Control Officer, Bay Area Air Pollution Control District

Facilities Engineering and Construction

Speakers—H. Wood, Plant Engineer, Fluid Packed Pump Co. and J. F. Gardner, Plant Engineer, Hughes Aircraft Co.

#### WEDNESDAY, JULY 19

##### General Session (9:30 A.M. to 12:00 Noon)

Work Sampling—How to Do It, How to Use It

Speakers—D. L. Wheeler, Director Plant Engineering, Greyson Controls Div., Robertshaw Fulton Controls Co. and M. P. Laursen, Supt. Parts Mfg., Marchant Div., Smith-Corona Marchant

Kinds and Applications of Work Measurement

Speaker—T. B. Evans, Deputy Chief Industrial Engineering Div., Maintenance Engineering, Headquarters Air Material Command USAF

##### Concurrent Sessions (1:00 to 2:30 P.M.)

Some Principles of Planning and Scheduling Maintenance Operations

Speaker—R. N. Price, Supt. Maintenance, Columbia Southern Chemicals

Budget Planning for Plant Engineering and Maintenance

Speaker—R. N. Marcum, Plant Engineer, Hughes Aircraft Co.

##### Concurrent Sessions (3:45 to 5:15 P.M.)

Slashing Indirect Labor Costs

Speaker—H. Monroe, Gen. Foreman Maintenance, Rocketdyne Div., North American Aviation

What Management Wants from Maintenance and Plant Engineering

Speaker—B. J. Sturman Jr., Mgr. Pacific Coast Region, Mfg. and Repair Div., Westinghouse Corp.

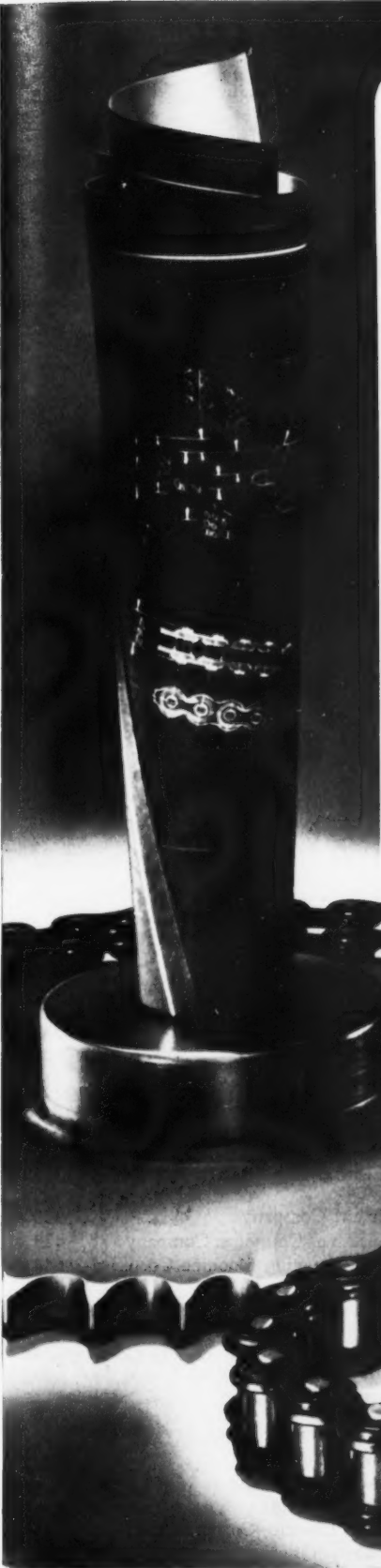
What Plant and Maintenance Engineers Want From Management

Speaker—W. J. Smith, Section Head, Plant Engineering, Goodyear Aircraft Corp., Arizona Division.

## EXHIBITORS

COMPANY	BOOTH NO.	COMPANY	BOOTH NO.
Acme Steel Company, Fab. Metals Div.	444	Buchanan Electrical Products Corp.	609
Adjusto Equipment Co.	608	Burton Industries, Powersnake Division	632
American Coolair Corporation	306	Change-O-Matic Corp.	510
American Pullmax Company, Inc.	543	Chamor Manufacturing Company	623
Aro Equipment Corp.	519	Clements Manufacturing Company	315
Ballymore Company	429	Clipper Manufacturing Company	630
Band-It Company	544	Collins Machinery Company	337-339
Bishopric Products Company	239	Norman G. Copeland & Co., Subs of	
Black & Decker Manufacturing Co.	237	Steel Sash Svc.	240
Breuer Electric Manufacturing Co.	343	Davey Compressor Company	627, 629, 631





## Mr. Plant Engineer

DIAMOND CHAIN Co., INC. makes available to you over 70 years of practical experience and know-how in the manufacture of power transmission products.

**Products Manufactured:** New No. 760 Catalog describes and illustrates finished steel ROLLER CHAIN, SPROCKETS, and FLEXIBLE SHAFT, "HI CAP" COUPLINGS. Write today for your copy!

**Identification:** Products are packaged either in clearly labeled cartons or transparent poly bags.

**Availability:** All products are readily available either from stocks in Indianapolis or from Distributors located throughout the U.S. who give emergency service on short notice.

**Engineering Service:** Technical engineering service is available on your request from the Indianapolis plant or the DIAMOND district office nearest to you.

**Sales Terms:** Standard business terms well established through use in American industry.

### DIAMOND CHAIN COMPANY, INCORPORATED

*A Subsidiary of American Steel Foundries*

Dept. 606 • 402 Kentucky Avenue, Indianapolis 4, Indiana

OFFICES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

DIAMOND



ROLLER  
CHAINS  
®

... for more details, circle No. 47 on Reader Service Postcard



*Look in the Yellow Pages for  
**PRODUCTS & SERVICES**  
and everything else you need*

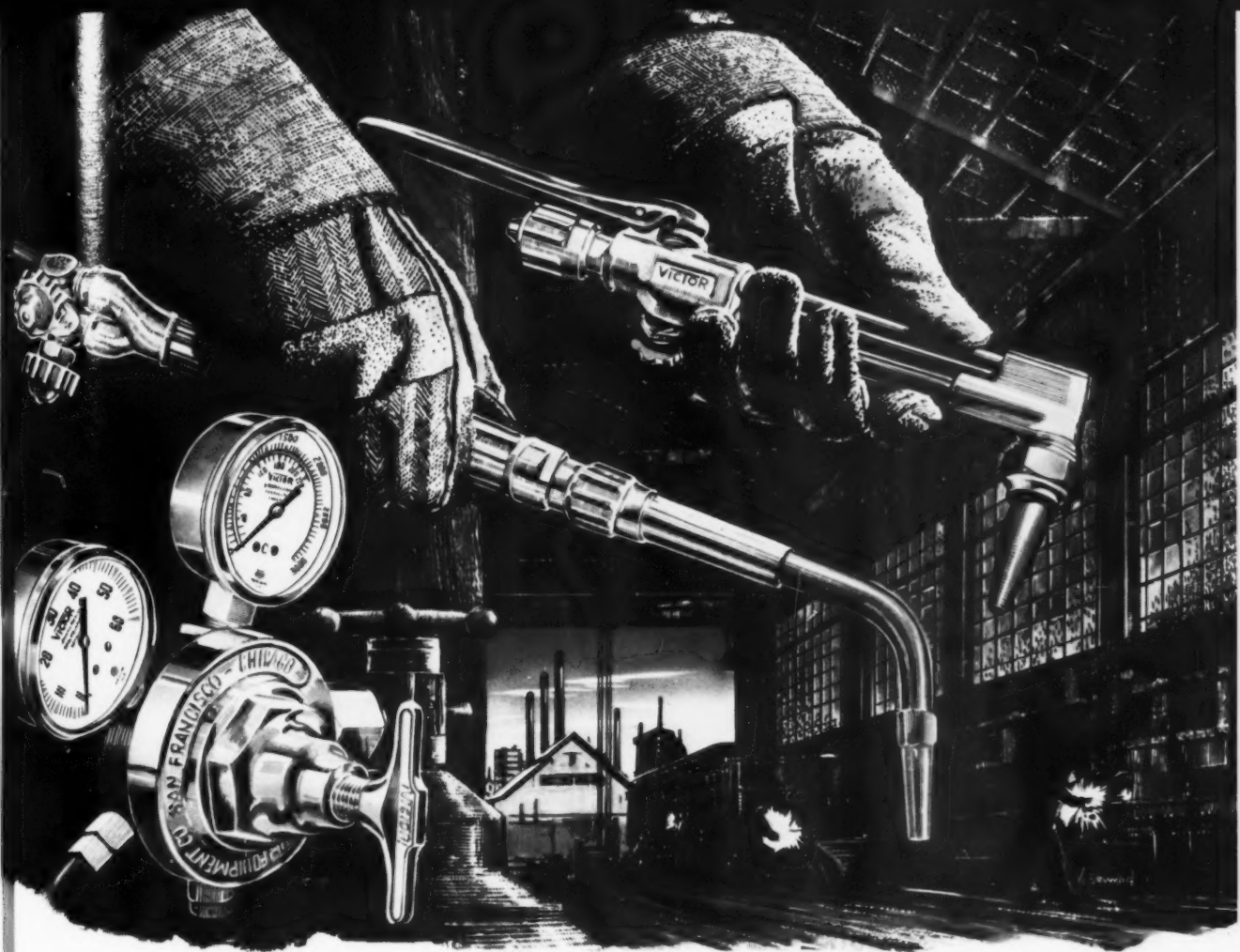
It's your one complete local source for any business you want. You'll find brand names listed, too, in alphabetical order along with their dealers. Whatever you need, you'll find it fast . . . in the Yellow Pages.



**Pacific Telephone**

... for more details, circle No. 48 on Reader Service Postcard

COMPANY	BOOTH NO.
Deluxe Metal Products Company	535-537
Easterday Supply Company	323
Fenway Machine Company, Inc.	417
Fibercast Company	227
Flexible Plumbertools, Inc.	243
Foster Manufacturing Company	523
General Electric Company	334
Globe Protection, Inc.	308
Gravely Tractors	305
Hild Floor Machine Company, Inc.	538
Hollywood Plastics, Inc.	639
Jamesbury Corporation	329-331
Kalman Floor Company	540
Kimberly-Clark Corporation	324
Walter G. Legge Co., Inc.	533
Lincoln Floor Machinery Company	436
Littrell Hardware Lines, Inc.	536
G. B. Lewis Company	434
Los Angeles Brush Manufacturing Corp.	528
Luxo Lamp Corporation	534
Martin Engineering Company	628
Mighty Mover Company	336
Milwaukee Electric Tool Corp.	509
Oakite Products, Inc.	643
Oster Manufacturing Company	427
Patent Scaffolding Co., Inc.	327
Permagile Corporation of America	228
Philco Corp.	238
Phillips Drill Company	224
Plan Hold Corporation	620
Ridge Tool Company	244
Rockwood Sprinkler Company	539
Simonds Pump Co.	531
Simoniz Company	624
Southern Manufacturing Company	319
Standard Dry Wall Products, Inc.	333
Standard Pressed Steel Co.	433-435
Swivelier Company, Inc.	524
Sylvania Electric Products, Inc.	335
G. H. Tennant Company	328
Thomas Flexible Coupling Company	428
Toledo Pipe Threading Machine Co.	644
Transparent Glass Coatings Co.	527
Tuff-Kote Company	610
Turco Products, Inc.	423
Union Wire Rope Corp., Subs. Armco Steel	634
U. S. Electrical Motors, Inc.	309-311
Wayne Manufacturing Company	424
Wesrep Corporation	530
Western Industry	408
Western Manufacturing	408
Westinghouse Electric Corporation	223-443
Wilkerson Corporation	406
Witch Marketing Company	511



*For the man on the job...*

## THE VICTOR JOURNEYMAN UNIT

**The most flexible, useful tools  
in the metalworking industry**

For cutting, welding, melting, brazing, hardfacing, heating, heat treating, heat priming and descaling, The Journeyman Unit provides a complete outfit of VICTOR quality, standard industrial-type equipment, including:

- Regulators... SR400 series single stage safety type
- Welding Torch... Model 315 (9" long)
- Cutting Attachment... Model CA2050
- Welding Nozzles... Type 4, sizes 1, 3, 5\*
- Cutting Tip... Type 3-101, size 1\* (cuts to 1")
- Accessories... 25 ft. 1/4" dual hose, goggles, spark lighter, wrench and instruction book (Form 1)

\*Additional types and sizes can be added as needed to extend the work range of the unit.

The man on the job using the Journeyman unit will prove it costs less to own and operate VICTOR



Available at all VICTOR dealers in the U.S.A. for \$175<sup>95</sup>

**VICTOR EQUIPMENT COMPANY**

844 FOLSOM STREET • SAN FRANCISCO 7  
3821 Santa Fe Ave., Los Angeles 58 • 1145 E. 76th St., Chicago 19

# New SUPER DUMPMMASTER Handles Converted DUMPSTER Containers...Beats Long-Haul Problem



Latest Addition to the

**DEMPSTER DUMPSTER**  
SYSTEMS

Owners of DEMPSTER-DUMPSTER Systems who now face long haul problems due to movement of disposal areas may now convert from their present "container haul" system to the new SUPER DUMPMMASTER "no-container-haul" system without abandoning their investment in DUMPSTER Containers.

The SUPER DUMPMMASTER makes its rounds to each converted container, mechanically empties the contents into its 30 cu. yd. packer body and compacts the material to a fraction of its former volume with the 85,000 lb. force of its packer plate. Rather than haul each container to the disposal area, the SUPER DUMPMMASTER carries the contents of many containers on each trip, cutting collection costs drastically.

**Write Today for FREE BROCHURE**  
**DEMPSTER BROTHERS**  
Inc.  
**DEPT. WI-6 KNOXVILLE 17, TENN.**

## "No Container Haul System" Collects Refuse on Spot

If longer trips to disposal areas have raised your operating costs, a small investment in conversion kits protects large investments in DUMPSTER containers. The Super DUMPMMASTER handles converted DUMPSTER containers up to 12 cu. yd. and all DUMPMASTER containers one thru 12 cu. yd.



Mfd. Only By  
DEMPSTER BROTHERS  
Inc.



The SUPER DUMPMMASTER engages container.



Clearance arms carry it toward hopper opening.



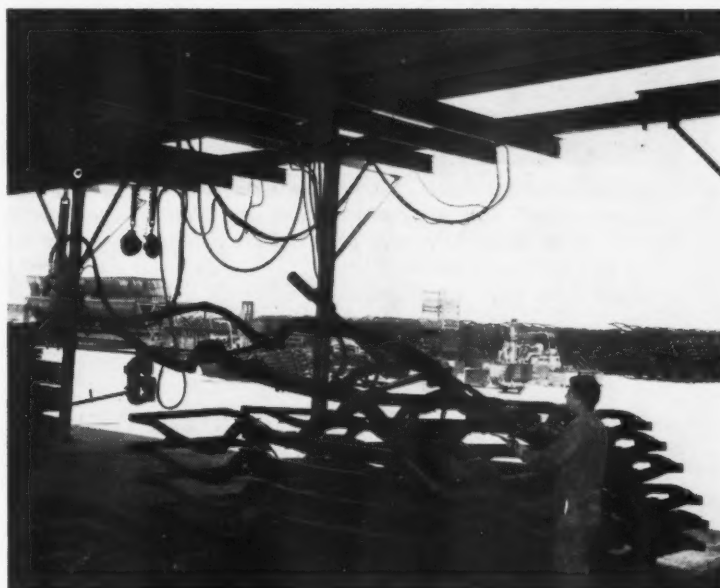
Container is rotated, emptying contents into the compaction body.

... for more details, circle No. 51 on Reader Service Postcard

WESTERN MANUFACTURING/JUNE 1961



*CHASSIS FRAMES are handled with Hoistractor and Gardner Denver Air Hoist. Frames are being sent to a punching operation. A pickup fixture with a counter weight grapples chassis frame in a cross-wise fashion. Frames weigh 480 pounds and can be handled with one man.*



## HANDLING & POSITIONING heavy loads for assembly

Air operated hoist that runs on rail moves heavy loads with speed, sensitivity and without operator fatigue.

**A**s critical as any of the varied operations that are advancing Western production line technology is the improvement in handling and positioning of components in a fast moving assembly plant.

Of particular significance is the increased use of air in this type of industry for movement of hoisted loads up to 10,000 pounds. One such air system that is connected to any hoist supported by a rail is a recently developed Gardner-Denver Hoistractor that is said to move loads with speed, sensitivity and without operator fatigue.

Speed of travel may vary from a slow creep to full

speed of 150 fpm. Brake is not dependent on air supply. In the event of air supply failure the brake acts automatically.

Also favoring air devices is the spark resistant characteristics of air motor mechanisms.

At the Pico-Rivera, Calif. assembly plant of a major auto manufacturer, a Gardner Denver Hoistractor and Air Hoist system is handling chassis frames being sent to a punching operation. Chassis frames are kept in an adjoining storage bay and must be picked up and moved to an area where a number of holes are punched in the frames for attachment of rear spring hanger brackets.



**MOVING FLOOR PANS** for passenger car bodies is accomplished with a Hoistractor and Air Hoist system. Pans weigh 90 pounds each and are moved at the rate of 52 parts per hour.



**OPERATOR POSITIONS** body handling pallet used to move body of car during paint and trim operations. This is a standby system in event that fully automatic conveyor system for pallets malfunctions.

Frames weigh approximately 480 pounds and must be moved from 10 to 30 ft. at the rate of about 15 units per hour. This job has been simplified and is now accomplished by one man due to a pick up fixture designed by the auto manufacturer for use in conjunction with the air powered Hoistractor that propels a ½-ton capacity Gardner Denver Air Hoist. Both the hoist and the bridge crane are controlled from a one-hand control block mounted on the right hand grip of the pick-up fixture frame.

In another application, front floor pans for passenger car bodies are being moved from storage areas to a conveyor fixture where they are dispatched to the production line for mating with car bodies.

The storage area contains nine different styles of floor pans which must be selectively chosen by the operator to match the intended production schedule.

Body floor pans weigh about 90 pounds each and must be moved from 10 to 40-ft. and properly positioned on a conveyor fixture at the rate of 52 parts per hour.

The previous method required manual carrying of parts for positioning on the conveyor fixture. The job is now handled by Hoistractor and Air Hoist. Again the bridge drive and hoist are both controlled by one handle which allows the operator to use his free hand to guide the pans when necessary.

A Gardner Denver package is also used in handling pallets used to convey auto bodies to paint and trim operations. Movement of these pallets is normally fully automatic on mechanized conveyor systems. Should any malfunction develop in the automatic system it is necessary that another system be pro-

vided to move pallets quickly to prevent a production bottleneck.

The standby unit uses a Hoistractor and hoist to power the hoist trolley and to lift and lower the handling fixture for pallets built by the auto manufacturer. This handling fixture is lowered, hooked to the pallet, and then is lifted and power driven to the next location.

Complete control of the lifting-lowering and lateral movement of the Hoistractor is provided by a finger operated lever system on the handles of the handling fixture.



**TYPICAL INSTALLATION** of a Gardner Denver Hoistractor is shown with a 1-ton capacity hoist. Both systems are air powered from a single control pendant.

*OVERALL VIEW of unit shows shearing carriage, left, and flanging carriage, right. Machine will accept foil sections up to 12 ft. wide. Light fixture, center, is an illuminated magnifying glass used to check flanged edge.*



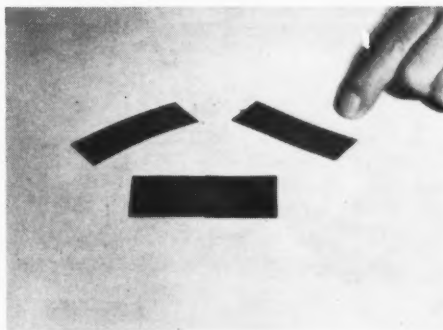
## FOIL SHEARING, accuracy achieved by new production method

Roll shear flanging machine does accurate shearing of metal foil necessary for good weld. Operation formerly was hand crafted by highly trained specialist.

**T**WO OF THE PROBLEMS associated with welding of ultra-thin stock, commonly classified as foil metal, have been accurate shearing to create a true edge and joining the edges in such a manner to prevent contamination and subsequent weakening of the weldment.

Airline Welding & Engineering, Gardena, Calif., has developed a system for flanging foil metal sections to provide them with an accurate abutting edge than can be joined without filler wire and its inherent contamination problems and thereby insuring close control of weld reinforcement and weld nugget geometry.

This production method is based on an Airline-built roll shear flanging machine that combines shearing and flanging operations in one unit that can be operated by a careful and basically skilled man. The new device eliminates what had been previously a hand crafted operation that required a highly trained specialist who could overcome the peculiarities of



*SAMPLES OF FOIL. Note neat weldment in piece, upper left, that had been sheared and flanged in machine. Square samples, center, are .015-in. thick stainless and have abutting edge so fine it must be examined by magnifying glass.*



*OPERATOR PREPARES TO shear foil held in hold down device and gripper fingers. Machine can be used to prepare edges of foil stock for joining into continuous coils.*

delicate foils down to .005-in. thick in order to cut a true right angle edge and to create the proper standing edge height.

The machine is equipped with a straight hardened blade that is attached to the edge of a work surface on which the foil is placed. Directly over the blade is a pneumatic hold down assembly fitted with a series of gripper fingers that are operated to provide an adjustable holding force along the entire edge of the foil under process.



A flexible strip is attached to the fingers to provide continuous gripping action and to correct for slight unevenness along the sheet edge. A guide set at 90 degrees to the shearing blade enables cutting of a true edge.

Riding on a track running parallel to the cutting edge are two manually operated carriages, one equipped with a hardened shearing wheel adjustable to .000-in./ .010-in., for proper clearance and from 0 degrees to 10 degrees camber and toe-in. The other carriage is equipped with one or more adjustable flanging wheels to produce correct flanging action on foil types that might include stainless, aluminum and magnesium.

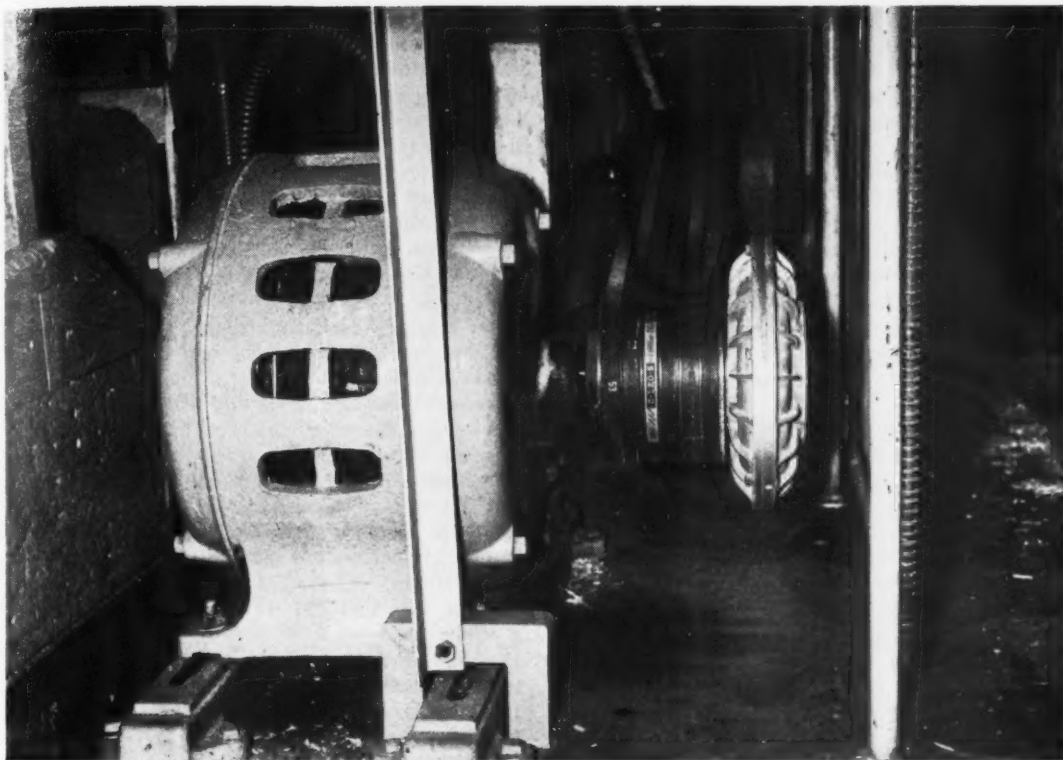
For flanging, a precision metal gauge is mounted on the machine to provide correct metal extension beyond the blade edge. The flanging wheel in turn forms the proper standing edge height by bending the extended metal against the true right angle of the blade.

The machine can accommodate foil panels up to 12-ft. in width and thicknesses from .001 to .015-in. in steel, stainless or similar alloys, and .020-in. in aluminum or similar alloys. A manually operated air pressure regulator provides adjustable hold down force from 0 to 100 psi. A foot valve operates the gripper fingers.

The machine is adaptable not only for sheet but also coiled stock and may have applications for fabricators who do not wish to shut down a continuous metalworking operation in order to periodically replenish a payout coil. Metal service centers faced with odd length leftovers in foil stock can prepare to join these into usable and saleable coils with the machine. Such salvage offers significant cost saving potential due to high initial expense of specially processed stock.

*CLOSEUP OF MACHINE shows carriage bearing shearing wheel. Operator grips handle and pushes carriage along track to force edge of foil down against cutting blade.*





*MOUNTED ON THE SHAFT of a 30 hp electric motor is a 15-in. dry fluid drive unit that permits high speed woodworking machines, called stickers to ease up to speed smoothly, eliminating the high draw of electric current otherwise present. Unit is located at right of six V belts.*

## FLUID DRIVES solve power load problem

Use of three of these units in an Oregon plant eliminated need for expensive electrical equipment.

**W**HEN NICOLAI-NEPPACH Company, Portland, Oregon, recently up-dated its mechanical power transmission system, an electric power problem presented a costly equipment requirement. The high degree of inertia required to start many of the woodworking machines placed a drain on available

electric power facilities far beyond their allowable maximum. Because of this, the local power company recommended use of compensators to eliminate this problem. These low-voltage starters, although they would have solved the starting power load problem, were expensive.

A more suitable solution was found. Dodge Flexidyne dry fluid drive units were installed on three machines that had particularly high inertia operating characteristics. These drive units provided a cushion for the starting shock load and permitted the machines to "ease up" to top speed, thus eliminating the high draw of electric current.

Established in 1866, the Nicolai-Neppach Company manufactures custom wood molding for cabinets, doors, windows, decorative molding and other assorted wood products. The plant formerly drove all of its machinery from one common line shaft. When unit drives became the economical method of operation for the plant, the firm decided to replace the line shaft with individual electric motors and V-belt drive units.

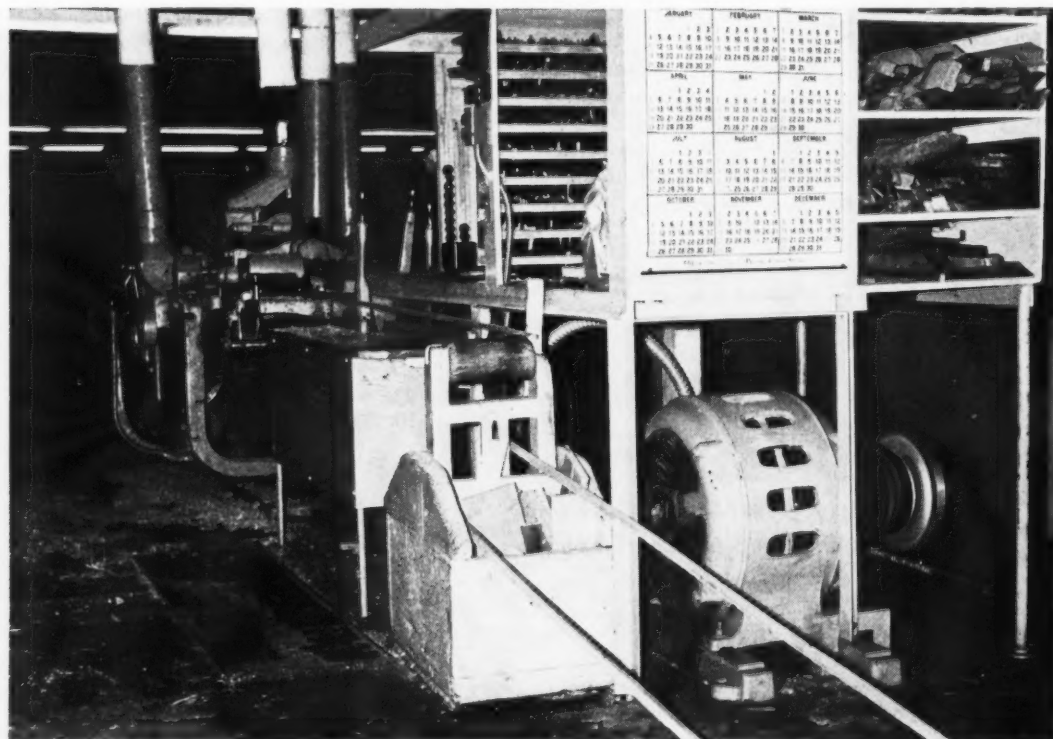
Three planing machines, known in the woodworking industry as "stickers," have extremely high-inertia operating characteristics during the first few moments of operation. One of the stickers is driven by a 30-horsepower electric motor; the other two are powered by 25-horsepower electric motors. The remainder of the three unit drives consist of multiple V-belt sheaves, six special duty V-belts per drive, and a 15-inch, Model 15D Dodge Flexidyne unit on each drive.

All three of the electric motors operate at a speed of 1,200 rpm. To insure extra-smooth detail molding, the four cutting heads on each sticker are driven

at 3,200 rpm., the motor speed being increased by the V-belt drives. Mounted on the end of the motor shafts of each drive, the 15-inch fluid drives cushion the starting shock load and allow machines to reach top speed slowly, which reduces the amount of current needed at this critical time.

The Flexidyne is a dry fluid drive in which heat treated steel shot is employed as a "fluid." Called the flow charge, a measured amount of the steel shot is contained in the housing of the unit. The housing is keyed to the motor shaft. When the motor is started, the flow charge is thrown to the perimeter of the housing by centrifugal force. This force packs the shot between the housing and the rotor which transmits power to the load. After initial slippage, experienced during the starting period between the housing and the rotor, has been overcome, the two elements of the dry fluid drive become locked together and achieve full load speed, operating without slip and with 100% efficiency.

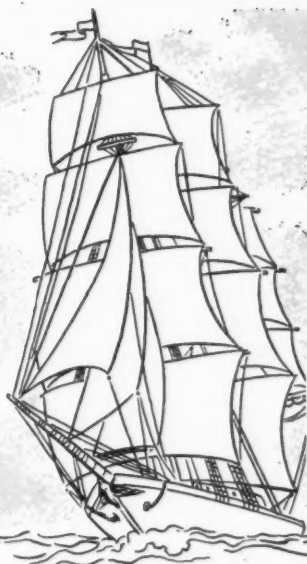
These operating characteristics met the problem because current draw is reduced to a minimum both during starting periods and in cases of overload operation. Plant operators at the company report that it would have been necessary to drive these three machines with 50-horse-power electric motors had they not used the fluid drive units. Use of these fluid drives enables them to drive the stickers with 25 and 30-horsepower electric motors.



**OVERALL VIEW OF MACHINE** called a sticker and mechanical power transmission system. The four cutting heads on each sticker are driven at 3,200 rpm. Motor runs at 1,200 rpm and ratio is increased by V belt drive. The Flexidyne fluid drive unit is seen on shaft at right of V belts.

# Why Rust-Oleum is different—

and what this difference,  
backed by 35 years of industry proof,  
means to you!



A Sea Captain  
developed it . . .  
Industry  
proved it!

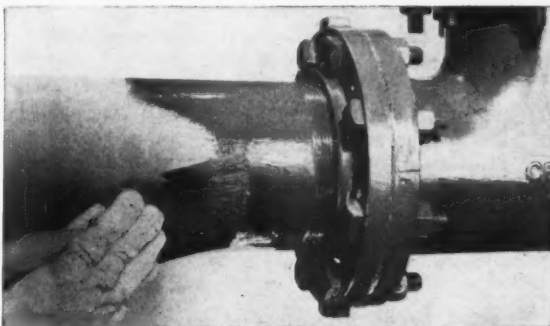
**T**he original Rust-Oleum formula was developed nearly fifty years ago by Sea Captain Robert Fergusson, who became intrigued with the rust-stopping qualities of fish oil early in his career. Creating a special treatment for the fish oil, he used the specially-processed fish oil as the vehicle in combination with fine rust-inhibiting pigments. The result? A coating that actually stopped rust when applied directly over sound rusted surfaces, after scraping and wirebrushing to remove rust scale and loose rust. Possible, because the specially-processed fish oil penetrated the rust to bare metal. This was the birth of Rust-Oleum's exclusive 769 Damp-Proof Red Primer.

## PROVED THROUGHOUT INDUSTRY FOR OVER 35 YEARS

Today, Rust-Oleum in its many systems and colors, has been proved throughout industry for over thirty-five years. This proof by leading industrial users is your assurance of savings in time, money, and metal. Economies made possible by the fact that Rust-Oleum 769 Damp-Proof Red Primer goes right over the sound rusted metal—usually eliminating costly surface preparations. And Rust-Oleum, in its various systems, resists rain, sun, fumes, heat, weathering, chemicals, etc., for lasting beauty over the years.

## RUST-OLEUM NEW COLOR HORIZONS SYSTEM

The Rust-Oleum New Color Horizons System introduces a new coating concept to industry. It combines four important factors: (1) the ability to stop rust, (2) smart, modern color harmony, (3) the durability to last and last, (4) ease of application that saves time, money, and metal. See how this system can bring lasting beauty to your plant, machinery, equipment, pipes, tanks, structural steel, fences, etc. Write for complete information or contact your nearby Rust-Oleum Industrial Distributor. He maintains complete stocks for prompt service.



# RUST-OLEUM®



There are imitations,  
but only one Rust-Oleum.  
It is distinctive as  
your own fingerprint.

# STOPS RUST!®

### ATTACH TO YOUR LETTERHEAD

Rust-Oleum Corporation  
2495 Oakton St., Evanston, Illinois

Please send me the following at no cost or obligation:

- ☐ New Color Horizons Systems Catalog featuring 110 actual color standards and 69 photo applications.
- ☐ Free test sample of Rust-Oleum 769 Damp-Proof Red Primer to be applied over sound rusted surface.
- ☐ Results of radioactive tracing study on Rust-Oleum fish oil penetration.

... for more details, circle No. 52 on Reader Service Postcard

## FURNACE DEVELOPMENT permits fast, uniform heat

Called a fluidized bed furnace, unit offers new possibilities in heat treating super alloys and exotic materials.

**A** FURNACE OF ADVANCED DESIGN that produces extremely fast and uniform heat without danger of explosion, noxious fumes and liquid drag out has been developed by Boeing Airplane Co. for heat treating super alloys and exotic materials.

Called a fluidized bed furnace it consists of a contained bed of refractory particles, a plenum chamber, a porous plate separator, a source of heat and a fluidizing atmosphere.

Atmosphere at controllable pressures is introduced into the plenum chamber and enters the refractory particle bed through the porous separator. When the pressure in the plenum reaches a critical value, the velocity of the atmosphere through the bed is sufficient to overcome the weight of the particles causing them to become suspended in the air stream.

At the same time, a considerable increase occurs in the heat transfer rate. Heat is applied to the bed by means of immersion heaters inserted directly into the bed, external heating of the container, use of heated products of combustion as a fluidizing atmosphere, or by burning an air-gas mixture directly in the bed.

When rated against comparative heating rates of other standard heat treating media, the fluidized bed furnace will reach 1400 degrees F. in somewhat over 5 minutes. A conventional air furnace might take 55 minutes to reach 1375 degrees F. The new furnace has a heat up rate slightly faster than the salt bath type furnace without a number of aforementioned disadvantages.

The use of a prepared atmosphere as the fluidizing gas permits fluidized bed heating of parts requiring careful attention to surface condition. When cost of the atmosphere is an important item, furnace design can enable recirculation of the atmosphere without contamination.

An agreement has been reached for manufacture



*LABORATORY UNIT of new fluidized bed furnace. This is being used for processing metal samples in stress relief, hardening, austempering and other heat treating operation.*

and sale of this Boeing developed furnace by Electric Furnace Co. and its subsidiary firms including Turnkey Engineering Co., South Gate, Calif.

Use of the furnace has expanded into other heat treat processes and offers a new approach to solution of a number of metal processing and heat treating problems, according to John W. Holzwarth, Turnkey vice president, industrial furnace division.

Located in the South Gate, Calif. laboratories of the firm is a furnace of this type that has been used for stress relief, hardening, austempering, rapid and inverse quenching to name a few.

Turnkey has been processing metal samples for evaluation of the advantages of this type of heating as applied to various industrial processes.



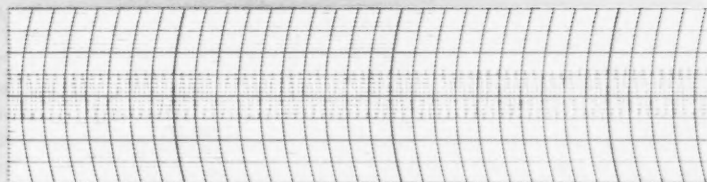






eddy current tested

Registered Trademarks.  
\*International Nickel Company, Inc.



Pacific Tube Company—the first steel tube mill in the West—produces quality tubing up to 85' and longer, on dependable delivery schedules. Whenever your tubing specifications require critical inspection, PATCO's eddy current tester for detection of external and internal flaws in either magnetic or non-magnetic grades, together with a complex of testing facilities in its fully equipped laboratories, is used to assure your receiving high quality tubing. Send your next order for PATCO Welded and Drawn or Seamless Tubing in Stainless, Alloy, Carbon, Monel\*, Inconel\* and other nickel alloys to your Steel Service Center, or order direct.

*Tubing Catalog No. 80 available without cost.*



## PACIFIC TUBE COMPANY

5710 Smithway St., Los Angeles 22, Calif. • RAYmond 3-1331  
Mill Agents (Bars): Fred G. Greaves Company, Seattle, Washington  
Western Representatives for Superior Tube Co.—the big name in small tubing



*COMPLETE LINE of coin operated vending machines at Phelps Dodge Copper Products. This food service unit can serve 150 workers hot lunches in seven minutes.*

*PREPARING HOT LUNCH is accomplished by worker using one of two available electronic ovens that warm food in seconds. Vending equipment of this type is considered by experts as suitable for most medium sized Western plants.*



## PLANT LUNCHES from vending machines

One solution to factory lunch problem is installation of battery of vending machines. This Western plant finds that it works well.

**A** NEW TYPE of push-button automated food dispensing system, recently developed in Los Angeles, has supplanted the steam table cafeteria in a number of industrial plants and is said to offer rapid hot meal service at lower costs.

According to the developer, Atlas Automatic Vending Corp., labor, pilferage, sanitation and plumbing problems are ended by installation of a bank of self contained coin operated vending machines that offer complete meals or a simple sandwich luncheon on a 24-hour basis. This would benefit plants running on a multiple shift basis and would eliminate the need for late shift workers to leave the plant area to eat their meals.

When taken from the Atlas dispenser the food is semi-cooked. The purchaser inserts the packaged food in an electronic oven and cooks his meal by pushing a colored control button on the oven that matches a color code printed on his food package.

Along with cost savings, Atlas spokesmen claim that workers are fed much more rapidly. One local installation serves 600 workers daily. Records indicate that 150 workers are served and seated within 7 minutes, including cooking time. This is four times faster than the steam table operation that preceded the vending operation.

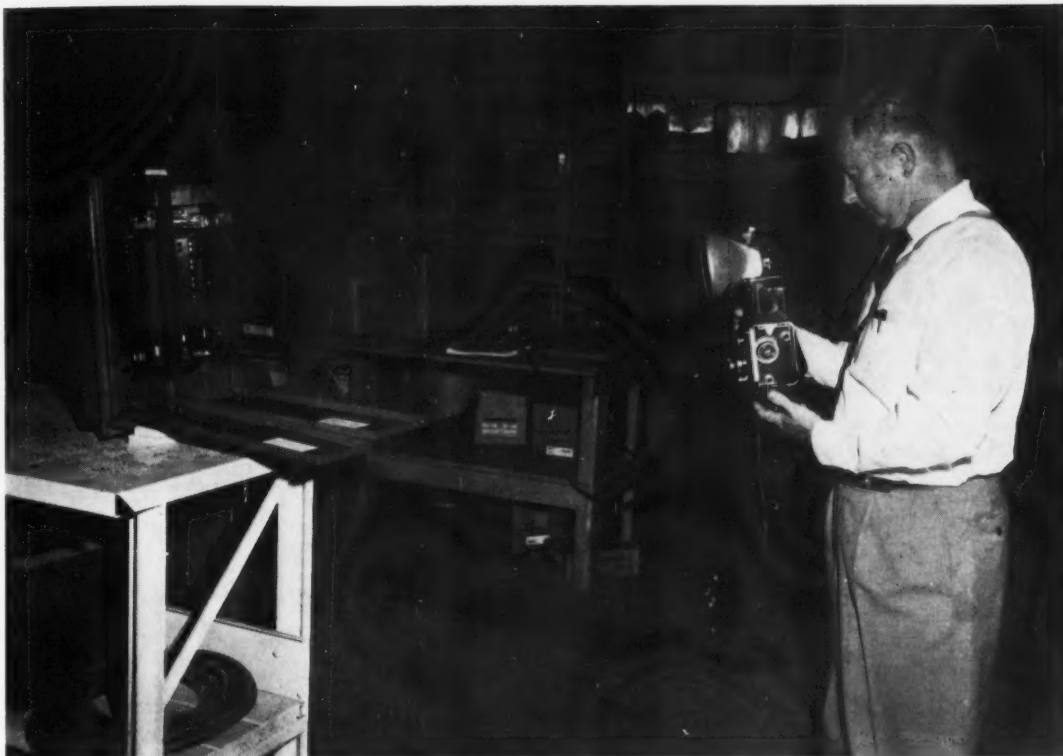
The firm says the push button restaurant takes the subsidy out of in-plant feeding. Through replacement of employer-owned and operated or subleased cafeterias in industrial plants, the corporations are relieved of capital equipment outlay.

Other advantages indicated include floor space savings, and elimination of payroll for non-productive cafeteria personnel. The Atlas installation requires limited space of 4-ft. wide by 40 ft. Only utilities necessary are water and electricity. Drainage is not necessary.

Waste, considered a prime food service problem, is practically eliminated, the firm says. All food items are packaged and refrigerated until needed and then are placed directly into the refrigerated vending equipment by Atlas personnel.

Current prices will allow a worker to buy a light luncheon plus hot or cold drink for 35 cents or a complete hot meal for under one dollar.





*PLANT SUPERINTENDENT Homer J. Lockwood prepares to photograph an assembly that has been made for the first time. Prints, 8 by 10-in. in size, will be included in all assembly photo books belonging to pertinent departments.*

## ASSEMBLY PHOTOGRAPHS save time, reduce mistakes

This Southern California plant uses photography to advantage in making custom built items and specially ordered variations of their standard line of electrical equipment.

**U**SE OF PHOTOGRAPHS rather than blueprints to guide workers engaged in manufacturing and assembly of numerous models of commercial switchboards and electrical service inclosures at Bulldog Electric Products of Los Angeles has resulted in time savings and elimination of costly mistakes.

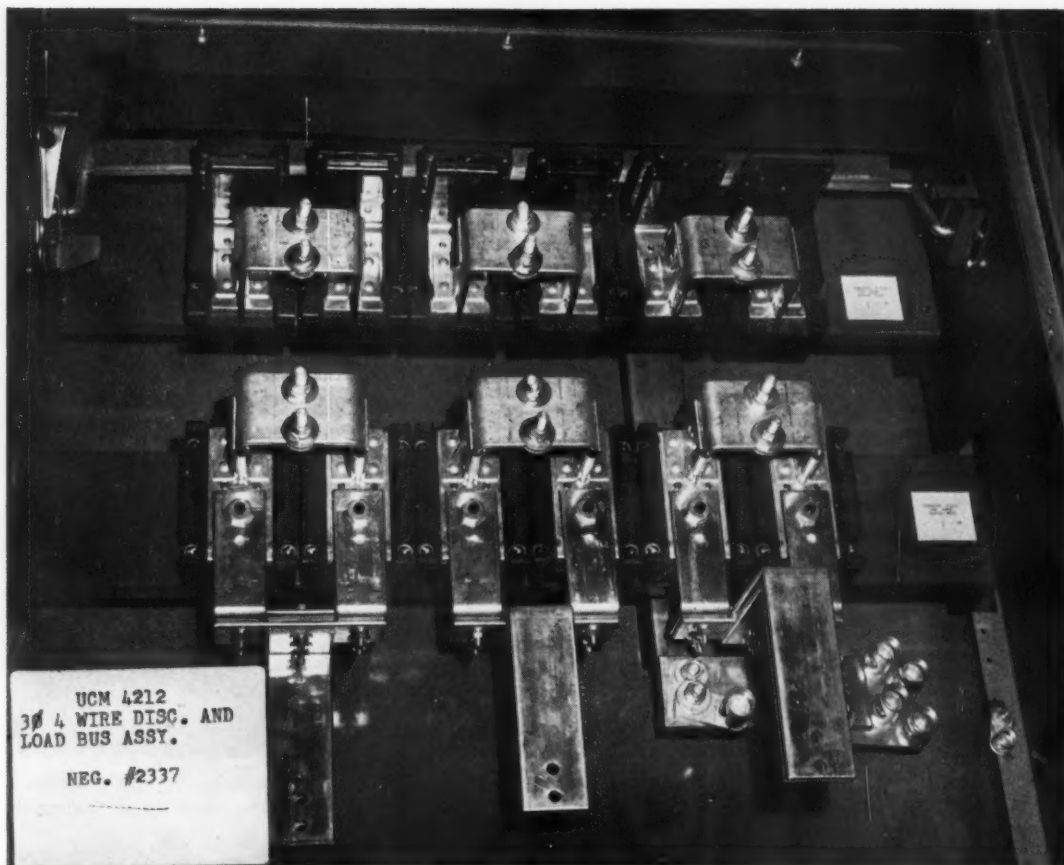
According to Plant Superintendent Homer J. Lockwood, their output includes dozens of models of custom built or repetitive types of electrical apparatus. One model may vary only slightly from another, perhaps in specific bend of one buss bar. An inclosure may differ only in that it has an extra knockout or a different bracket. Dimensions of the inclosure or spacing of components may change minutely from model to model and could easily be mistaken on a blueprint.

To cover the many models of standard and cus-

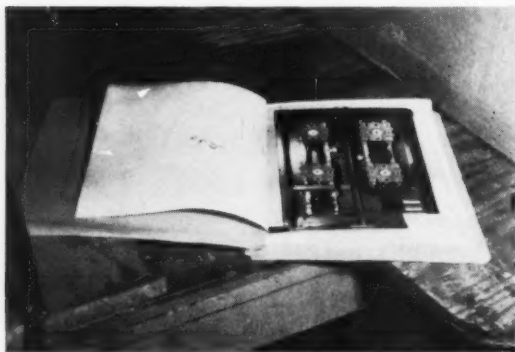
tom items with blueprints and to produce a new blueprint with each model change was considered a costly undertaking and would require considerable time by engineering draftsmen. Lockwood estimates the cost of a complete set of blueprints for a "rare bird" or custom model at about \$100.

Blueprints wear out rapidly during constant shop use, especially after repeated folding, and often a frayed and worn spot in the blueprint hid a vital part of the assembly.

Supplementing blueprints in all fabrication and assembly departments are photos taken by Lockwood of every model and modification of models currently in production. The photographs, along with labels bearing the model number and a brief description of the item, are bound into tough paper backed manuals called assembly photo books.



PRINT TAKEN from photo book shows details of complex assembly, placement of fasteners, configuration of bus assemblies, location of support brackets. Firm feels photo is much more easily read than blueprint.



TYPICAL OF MANY assembly photo books found throughout the plant is this volume used by the sheet metal assembly department to guide workers in using proper components. Some parts vary only slightly, perhaps by one knockout or a hole for a fastener.

Depending on the department, the photo may show a partially or completely assembled item. A brief legend describes the peculiarities of the partic-

ular assembly such as, "Bus duct going out back of can (inclosure) from C.T. (current transformer).

In this manner the assembler's attention is drawn to the particular bus duct in question far more vividly than if he had to trace the variance on a blueprint.

Lockwood finds that with photographs he can use plant workers without sharp blueprint interpretation skills in assembly of complicated switchgear.

In sheet metal assembly stations, photos are helping to eliminate mis-matched parts. Since many models use the same basic size inclosure it is relatively easy for an assembler to place the wrong bottoms or end on the inclosure. They all look basically similar. But if an assembler follows an exploded photograph (see illustration) he does not even need to know the part number but can match the proper parts by visual inspection by checking the size and position of knockouts, fastener holes, etc.

Photos prove a timesaver when an old customer reorders "that switch panel you made up for me on a special order 3 years ago." If the job site is local, Lockwood may go there and photograph the assembly and then distribute copies to all responsible departments in the plant. An exact duplicate of the customer's custom installation can be made entirely without blueprints.



## OIL IN ITS INFINITE VARIETY

is source to many marvels of this modern world. Continuing research...down many avenues, some blind, some fruitful...is father to discovery in petrochemicals. This is a prime concern at Richfield Research Center in Anaheim, California, where a corps of Richfield scientists contribute to a more self-sufficient chemical industry in the West.



WESTERN CHEMICALS—MADE IN THE WEST—FROM THE WEST'S RAW MATERIALS

### **RICHFIELD OIL CORPORATION/CHEMICALS DEPARTMENT**

645 SOUTH MARIPOSA AVENUE • LOS ANGELES, CALIFORNIA

**BENZENE • TOLUENE • MIXED XYLENES • ETHYLENE • PROPYLENE • PROPYLENE POLYMERS**

Alkyl Benzenes, produced by Witfield Chemical Corp., a jointly-owned Richfield subsidiary

Vinyl Chloride • Ethyl Chloride • Ethylene Dichloride, produced by American Chemical Corp., a jointly-owned Richfield subsidiary

... for more details, circle No. 54 on Reader Service Postcard

# HELPFUL LITERATURE

FOR THE WEST'S PLANT OPERATING EXECUTIVE



FOR YOUR FREE COPY Use Post Card on page 90

## METAL CLEANER

136

An efficient metal cleaner that also leaves a film to protect parts from rust during processing or in storage is described in this bulletin. Data covers description, performance, how to use, features and a test photo. *E. F. Houghton & Co.*

## WELDING ELECTRODES

137

A series of reference data charts pertain to bronze welding electrodes, bare filler rods and wire. Includes information on comparative bronze electrodes, melting rates and efficiencies, electrode and filler rod specifications and recommended welding currents for various welding procedures. *Ampco Metal, Inc.*

## FILM PACKAGING

138

Major features of two tough new film materials and their packaging applications are highlighted in this brochure. Discusses composition, durability, transparency and performance on high speed packaging machines. *American Viscose Corp., Film Div.*

## TUBING GUIDE

139

Principal characteristics, size range and relative cost of carbon and alloy steel tubing for mechanical, structural and hydraulic applications are set forth in this bulletin. Also covers stainless steel, aluminum and industrial plastic tubing. Gives tips on when to use tubing instead of bar stock for parts production. *Joseph T. Ryerson & Son, Inc.*

## STORAGE LOSSES

141

Thought provoking booklet poses 12 questions which help to pinpoint where storage system losses are taking place. Contains 63 illustrations which show the many kinds of steel storage equipment at the disposal of storage system planners. *Penco Div., Alan Wood Steel Co.*

## NEW PUNCH PRESS

142

Brochure about a new punch press, available in three and five ton capacities, that is ruggedly designed and precision built for maximum production. Outlines unique and advantageous features of the small punch presses. Include specifications and illustrations. *Kenco Mfg. Co.*

## ORDER PICKING

143

A new distribution warehousing system for case goods order picking is described in this bulletin. Explains equipment and method of operation of the continuous flow system, which operates from punched card or keyboard input. *General Electric Co.*

## DIGITAL READOUTS

144

Bulletin about projection-type digital readout units that feature one-plane presentation and are available in groups of two or more for easy panel mounting. Covers outstanding features, includes circuit diagram, specifications of the series, standard characters available, mounting dimensions for assembly and suggested applications. *Industrial Electronic Engineers, Inc.*

## MAINTENANCE

145

Helpful facts about making maintenance and repair parts are set forth in this 16-page picture booklet. Offers ideas on how to save time in machining parts, eliminate heat treating, quench and last minute parts rejections. *Earle M. Jorgensen Co.*

## SEALS AND PACKINGS

146

Catalog describes the physical characteristics of a urethane elastomer and shows why this material is best suited for solving sealing problems in hydraulic and pneumatic equipment. Describes and illustrates various types, sizes, operating features and advantages of the solid urethane seals and packings. *Disogrin Industries.*

## FLY BAR

147

A progressive step fly bar for fast efficient stock removal is pictured and described in this bulletin. Covers advantages of its use, features and specifications. Also describes a boring head, including illustrations and specifications. *Lido Tools*

## CENTRIFUGAL PUMPS

148

High pressure multi-stage centrifugal pumps for boiler feed, pipe line, refinery and other high pressure services are described in this bulletin. Maximum working pressure, complete specifications, performance curves, materials of construction and dimensions are among other data given. *Goulds Pumps, Inc.*

## FLOOR SCRUBBER

149

A self-propelled battery powered floor scrubber that meters the solution, scrubs, and picks up and dries in one automatic operation is illustrated and described in this brochure. Includes specifications on two models. *Lincoln Floor Machinery Co.*

## CONTAINER LININGS

151

This 49-page test chart manual is designed to help steel container users, manufacturers and reconditioners select the proper protective linings. Includes 39 pages of test results, listing the holding qualities of linings for hundreds of different products. Describes each lining in detail, outlines the test program and explains evaluation system used. *Bradley & Vrooman Co.*

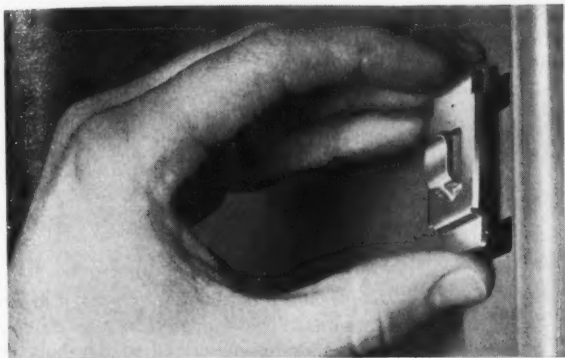
## LIFTS AND RAMPS

152

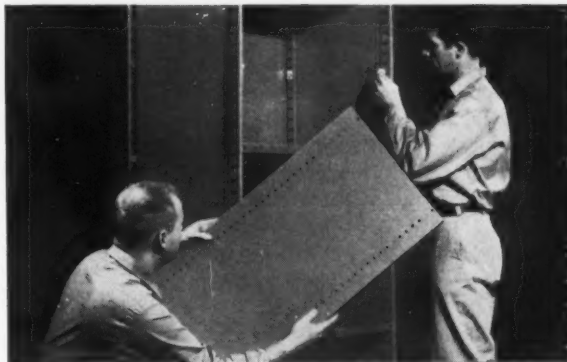
How hydraulic lifts and dock leveling ramps serve the material handling needs of printers, publishers, paper mills and paper converters is discussed in this special issue house organ. Covers case studies and field photos of lift and ramp installations. *Globe Hoist Co.*



## COSTS LESS TO BUY AND ERECT!



New one-piece shelf clips lower shelving costs—can be installed without tools. Made of heavy gauge steel, the clips are strong enough to support heavy loads.



Up to 50% saving on erecting costs. This standard 8-shelf unit was erected by 2 men in less than 10 minutes, thanks to the new one-piece shelf clips.

## GIVES GREATER ADJUSTABILITY!



New clip-type shelves go in and out without tilting. Shelves need not be unloaded to be repositioned. What's more, no tools are required to make shelf adjustments.



Shelves are adjustable on 1½" centers. This feature, plus the beaded front post, eliminates wasted space—gives more useable storage capacity in less floor space.

# HALLOWELL

## CLIP TYPE ERECTOMATIC® SHELVING

### CHECK THESE OTHER ADVANTAGES:

- Interchangeable with regular Erectomatic shelves and shelf supports.
- New clip fits flat against post—does not steal storage space.
- New, stronger shelves. Corners are lapped and spot welded.
- Available on the most liberal lease plan in the industry.

COLUMBIA-HALLOWELL Division

JENKINTOWN 86, PA. • SANTA ANA, CALIFORNIA

**SPS**

*where reliability replaces probability*

### MAIL COUPON FOR FREE CATALOG

COLUMBIA-HALLOWELL Division SPS  
JenKintown 86, Pa.

Please send me catalog on new Hollowell Clip-Type Erectomatic Shelving

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

... for more details, circle No. 55 on Reader Service Postcard

**INTERIOR PACKAGING 153**

Folder includes swatches of three new grades of interior packaging material: one for military and export packaging; an extremely absorbent and conformable general purpose cushioning, and another for absorbent or decorative packaging. Data includes roll widths, embossings and thicknesses. *Kimberly-Clark Corp.*

**TOOLMAKERS SINE 154**

Bulletin about a toolmakers sine specifically designed to reduce setting time and insure accuracy for the angular milling, grinding and boring of round stock. Also describes sine plates and sine centers. *Production Tool and Die Co., Inc.,*

**TEST KIT 155**

Bulletin about a portable fluorescent penetrant test kit that finds cracks, pores, and leaks. Describes the equipment and operation. Applications include critical areas of large parts, limited volume production, complex fabricated shapes, equipment maintenance and overhaul, pilot runs and tools. *Air Reduction.*

**ELECTRON TUBES 156**

This 58-page illustrated brochure for both new and experienced electronic engineers reviews many of the do's and don'ts of tube applications. *Sylvania Electric Products, Inc.*

**THERMOPLASTIC 157**

The outstanding corrosion-free properties of Penton, a versatile engineering thermoplastic, are detailed in this booklet. In addition to charts and graphs illustrating chemical composition and structure, booklet contains data on the plastic's physical, mechanical and thermal properties and its broad range of chemical inertness at extreme temperatures. *Hercules Powder Co.*

**VALVES 158**

A group of new control and line valves for pneumatic and hydraulic service are described in this brochure. Outlines 10 advantages of their use including bubble tight shut-off. Contains detailed specifications, illustrations and typical attachments. *Ledeen, Inc.*

**BOLTING 159**

Reference bulletin devoted to specification and use of high strength bolts for field and shop fabrication of all types of structural steel assemblies. Contains design theory, cost studies, and covers every facet of the most recent development for fabricated structural joints. *Russell, Burdall & Ward Bolt & Nut Co.*

**AIR DIFFUSER 161**

An air diffuser for troffers that permits coordination of air distribution and illumination in a single ceiling unit is described in this bulletin. Includes performance data, typical ceiling applications and specifications. *Anemostat Corp. of America.*

**PRECISION GAUGES 162**

Brochure describes both verbally and graphically the features of precision test gauges designed for high accuracy pressure measurement. Includes specifications and illustrations show the complete number of graduations available to cover pressures from F. S. 60 psi to 15,000 psi. *Martin-Decker Corp.*

# AIR COMPRESSORS

*For original equipment components, or general shop and plant use*



for detailed  
specifications  
on our  
complete line  
write to ▶▶▶

Kellogg-American compressors give efficient low-cost service by delivering more **USABLE FREE AIR** per kilowatt hour.

Superior Kellogg-American engineering, workmanship and rugged construction combine to assure long trouble-free life.

Choose from over 250 different models, from 1/3 through 20 HP, including bare compressors, base-plate mounted, and tank-mounted units. Available in single and two-stage models.



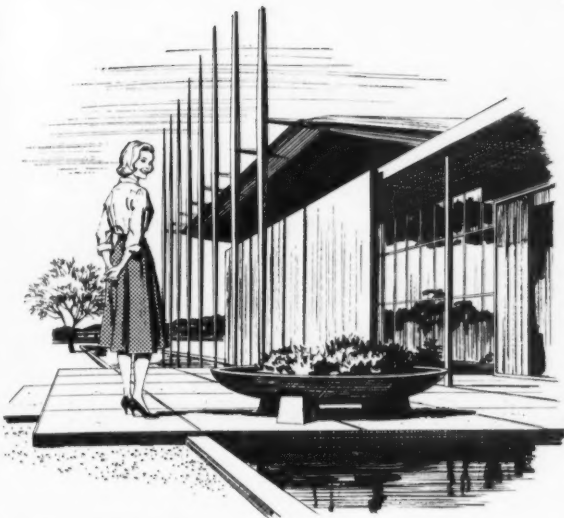
## Kellogg-American

DIVISION SCAIFE COMPANY

2914 LEONIS BLVD. • LOS ANGELES 58, CAL.



... for more details, circle No. 56 on Reader Service Postcard



ARCHITECT: PEREIRA & LUCKMAN

**SIXTEEN GIANT LANCES IN A MOAT** support the massive, floating canopy of this auditorium-cafeteria at the Chrysler Training Center in Anaheim, California. For strength and beauty, the outside columns, slim and functional, and the inside roof system with a 70 ft. clear span are designed of welded USS Steel Plate. The Center's rigid, durable steelwork is by Riverside Steel Construction, Southgate, California.



## new Western ideas in **USS** steel

**BIG EDGE IN CONSTRUCTION** is achieved today with steel! Industrial and farm buildings are buttoned up for life with a variety of standard fittings styled in USS Sheets galvanized for long-term durability. Steel flashings, ridge caps and corners lock out weather, save on labor and assure a neat appearance. Steel building accessories are made by General Metalcraft, Inc., Portland, Oregon.

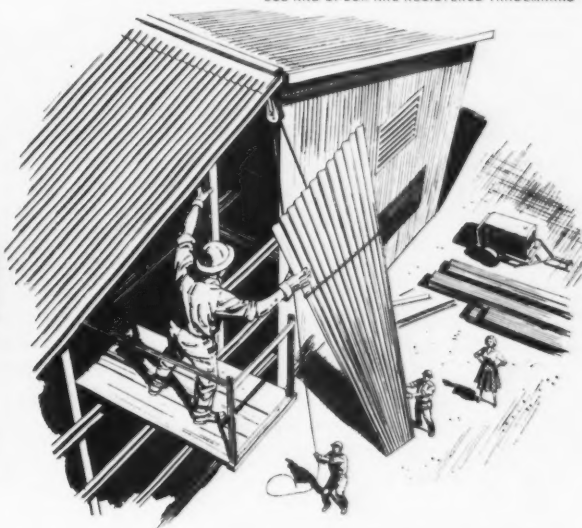
**STEEL FOR EVERY PURPOSE  
FROM A SINGLE SOURCE**

### **STRONG TOE-HOLD FOR HOMES ON THE GROW!**

New communities go up fast in the West when anchor bolts made from USS Bars get set. Rolled-in, raised pattern is the same used on USS Reinforcing Bars for strength and holding power. Di-Lok anchor bolts speed construction because they're easy to insert and position in fresh concrete. Rods, Inc., makes bolts like these in Berkeley, California.

**LONG SPAN LONGEVITY FOR BUILDINGS.** This new machine shop in Albany, California, was covered in three days with strong, long-span panels made from USS Galvanized Sheets. Economical long steel sheets reduce labor costs, speed construction time with fewer supports, fittings, seams and overlaps to make a weathertight, dust-free building. Custom-length panels like these are manufactured by Curoco, in Albany, California.

USS AND DI-LOK ARE REGISTERED TRADEMARKS



This mark tells you a product is made of modern, dependable steel. Look for it on the products you buy.



Write Consumer Service, 120 Montgomery St., San Francisco 6



**Columbia-Geneva Steel  
Division of  
United States Steel**

## Literature Advertised In This Issue

**Radio Pager System** for immediate contact, private messages. Fact kit. *Motorola Communications & Electronics, Inc.*  
Page 80 Circle No. 61

**Monoform System** for roof maintenance or new roofing. Bulletin. *Flintkote Co.*  
Page 117 Circle No. 112

**Lubricants** that are effective in extreme heat. Data Book. *Lubriplate Div., Fiske Brothers Refining Co.*  
Page 82 Circle No. 63

**Floor Maintenance Machines** built to do several jobs. Catalog. *American Floor Machine Co.*  
Page 105 Circle No. 87

**New Electric Hammer** removes steel sash putty in seconds. Bulletin. *Milwaukee Electric Tool Corp.*  
Page 93 Circle No. 73

**Revolving Joint** that automatically adjusts to stress and strain. Catalog. *Perfecting Service Co.*  
Page 94 Circle No. 74

**Portable Drum Rotator** cuts costs of mixing, blending, tumbling and cleansing. Catalog. *Morse Mfg. Co., Inc.*  
Page 82 Circle No. 64

**Super Diamond Floor** plate that is easy to fabricate, clean and is non-skid. Bulletin. *Alan Wood Steel Co.*  
Page 18 Circle No. 24

**Roller Chain, Sprockets**, and flexible shaft couplings. Catalog. *Diamond Chain Co., Inc.*  
Page 55 Circle No. 47

**Payloaders** for tough bulk-handling jobs, 20 models. Data. *Frank G. Hough Co.*  
Page 115 Circle No. 111

**Conveying Systems** that are flexibly designed for specific problems. Catalog. *Lamson Corp.*  
Page 45 Circle No. 42

**Industrial Gloves** for more than 200 industries and trades cataloged. *Wix-Merit Glove Co.*  
Page 121 Circle No. 118

**Industrial Wire Cloth** of many different metals, meshes and sizes. Reference bulletin. *Colorado Fuel & Iron Corp.*  
Page 83 Circle No. 65

**Western Plant Maintenance & Engineering Show**, Los Angeles, July 18-20. Show details.  
Page 16 Circle No. 22

**Overhead Conveyor Systems** increase efficiency. Data on Western installations. *Chainveyor Corp.*  
Page 79 Circle No. 59

**Fences** help industrial operations. Catalog. *Anchor Fence.*  
Page 81 Circle No. 62

**Proper Tire** selection improves truck performance. Bulletin. *Monarch Rubber Co.*  
Page 89 Circle No. 71

**All-Steel Motoreducer** for better service in sizes up to 75 hp. Bulletin. *Falk Corp.*  
Page 17 Circle No. 23

**A Chelating Agent** that will soften process water, tie up metallic impurities, prevent scale. Full data. *A. R. Maas Chemical Co.*  
Page 53 Circle No. 46

**Field Warehousing** for more working capital. Facts and figures booklet. *Haslett Field Warehousing.*  
Page 119 Circle No. 115

**Hoists** for every job that feature safety and a minimum of maintenance. Catalog. *Chisholm-Moore Hoist Div.*  
Page 101 Circle No. 84

**New Color Horizons** systems catalog; a test sample of Damp-Proof Red Primer; Results of radioactive tracing study on Rust-Oleum fish oil penetration. *Rust-Oleum Corp.*  
Page 65 Circle No. 52

**Interchangeable Shelving** that can be used for light or heavy loads. Data. *General Fireproofing Co.*  
Page 88 Circle No. 69

**"T-I" Alloy Steel** for castings has outstanding advantages. Bulletin. *Alloy Steel & Metals Co.*  
Page 120 Circle No. 116

**Combination AC-DC Welders**, two sizes. Complete specifications. *Miller Electric Mfg. Co., Inc.*  
Page 113 Circle No. 97

**Alloy Studs and Bolts** for use where great temperatures and pressures develop. Catalog. *Coast Industrial Supply Co., Inc.*  
Page Cover 3 Circle No. 122

**Ball Valves**, a complete line in wide range of materials. 64-page catalog. *Pacific Valves, Inc.*  
Page 98 Circle No. 81

**Clip Type Shelving** for easy erection and greater adjustability. Catalog. *Columbia-Hallowell Div., SPS.*  
Page 73 Circle No. 55

**Rotary Air Compressors** designed to speed production. Bulletin. *Davey Compressor Co.*  
Page 77 Circle No. 57

**Powdered Industrial Housekeeping** equipment from vacuums to cleaning compounds. Catalog. *Easterday Supply Co.*  
Page 51 Circle No. 45

**Pump** with a re-designed fluid end offers 50% more g.p.m. Catalog. *John Bean, Div. Food Machinery & Chemical Corp.*  
Page 123 Circle No. 119

**A Caster or Wheel** for every kind of use and floor. Manual. *Darnell Corp., Ltd.*  
Page 112 Circle No. 95

**Convert Dempster (Dumpster) Systems** from "container haul" to "no container haul." Brochure. *Dempster Brothers, Inc.*  
Page 58 Circle No. 51

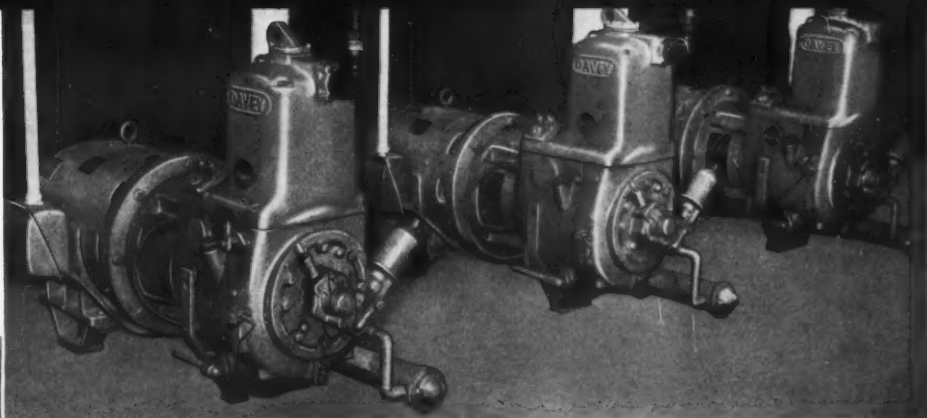
**Customized Louvered Luminaires** for improved plant lighting, easy maintenance. Data. *Smoot-Holman Co.*  
Page 28 Circle No. 33

**An Idler** with unique double-seal design cuts costs where dust and dirt are a problem. Catalog. *Jeffrey Mfg. Co.*  
Page 43 Circle No. 39



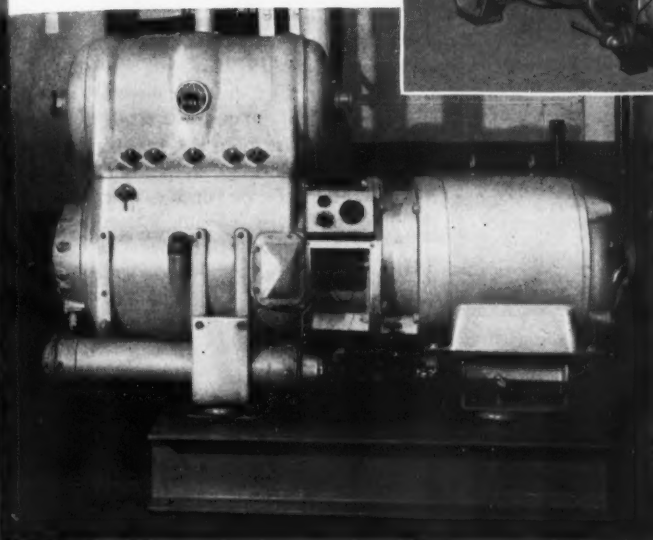
*a famous boat  
manufacturer*

Lone Star Boat Company,  
Plano, Texas



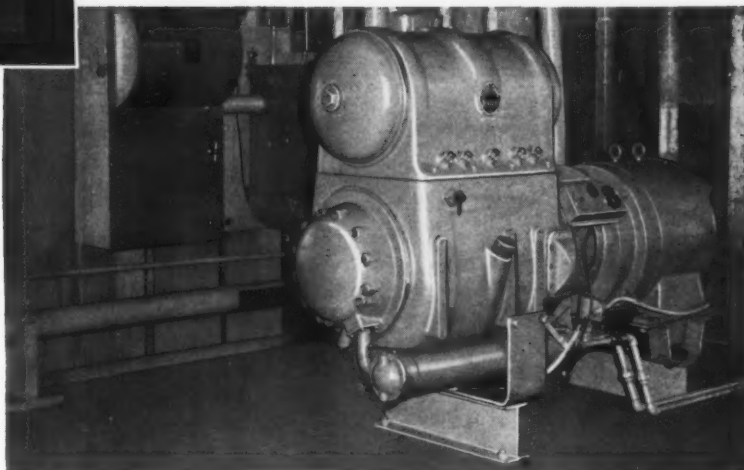
*a maker of fine cutlery*

Clauss Cutlery Company,  
Fremont, Ohio



*and a railroad service shop*

Clinchfield Railroad Company,  
Erwin, Tennessee



use **DAVEY** Rotary Air Compressors to speed production

Industry today has a new air compressor, with superior performance and fewer operating parts—50% less. Designed for high speed production, Daveys are easier to install, dependable to operate, economical to maintain.

In 2 to 150 h.p. sizes, water or air-cooled, they are self-enclosed. No exposed belts or couplings. Oil consumption is no greater than ordinary reciprocating machines—often only 10% of other rotary compressors.

Only Davey offers *long life* Perma-Vane blades. Patented, used exclusively by Davey, these stop blade deterioration and breakage . . . eliminate the biggest cause of rotary compressor trouble. Write for Bulletin E.

**DAVEY**

*built to  
serve and endure*

Industrial Division  
**DAVEY COMPRESSOR CO. • KENT, OHIO**

. . . for more details, circle No. 57 on Reader Service Postcard

**DIAL INDICATORS 166**

Flexibility in design and utilization of a line of cabinet dial and pillar dial indicators are described in this well illustrated brochure. Covers features common to the two types and cutaway photos show the full-floating, double pendulum patented dial mechanism. *Fairbanks, Morse & Co.*

**MEASURING MACHINE 167**

A machine that measures the distance between holes and surfaces in two dimensions to an accuracy of bet-

ter than .001 and flashes the answers out on two illuminated digital readout panels is the subject of this bulletin. Discusses applications, operation, advantages and features. *Sheffield Corp.*

**SPECIAL TRUCKS 168**

Engineering case book discusses the role of "special" electric industrial trucks in diverse operations. Describes jobs best suited to special models, analyzes the economics of the units, and includes documentaries. *Elwell-Parker Electric Co.*

**TUBING 169**

Latest specifications, dimensional and engineering data on carbon steel, alloy, stainless and aluminum tubing are contained in this stock catalog. Data on carbon steel pipe, stainless steel pipe, steel tubular shapes and aluminum Holobar are also presented. *Kilsby-Tubesupply.*

**FRESNO INDUSTRY 171**

A 22-page industrial directory of Fresno, Calif. manufacturers, processors, and distributors. Comparisons of the 294 listings in the directory shows an increase in the types and kinds of industry being attracted to Fresno County, described as the "World Capital of Agribusiness." *Fresno County-City Chamber of Commerce.*

**BIN BOXES 172**

Data about bin boxes especially designed to save inventory time and money. Explains advantages of weighing at inventory time, box construction, features, design, and dimensions. Includes illustration and example. *Convoy, Inc.*

**PERFORATING MACHINE 173**

Engineering data on a newly introduced production perforating machine is included in this bulletin. Explains operation, economy, and application for perforating products such as plastic film, paper, cloth, rubber, foil, leather, cardboard, and coated products where many holes are needed or where sheet materials need to be made porous. *Robert A. Main & Sons, Inc.*

**VALVES 174**

Condensed catalog illustrates two-way, three-way, four-way, miniature and special valves, giving specifications, outstanding and optional features and dimensions. Also describes cylinders, accessories, pumps and special controls. *Airmatic Valve, Inc.*

**FINISHING, PROCESSING 175**

Profusely illustrated equipment catalog covers metal cleaning and surface preparation, pickling or rust-proofing equipment; drying, baking and processing ovens; complete finishing systems; special processing equipment; control components; and dust and fume-control equipment. *R. C. Mahon Co.*

REGARDLESS OF THE ROTATION -  
CLOCKWISE OR COUNTER-CLOCK-  
WISE...

FAN  
MASTER  
CORP

YOU ARE ON  
THE CLOCK WHEN  
THE TIME COMES  
WITH...

MASTER FAN CORP.  
AIR MOVING EQUIPMENT

MEMBER  
OF  
A.M.C.A.

MASTER FAN CORP

1323 CHANNING STREET LOS ANGELES 21, CALIF. MA 2-1037  
*Serving Western Industry for over 40 years.*

... for more details, circle No. 58 on Reader Service Postcard

**SWAGE NUT****176**

Bulletin reviews a self-locking, lightweight swag nut designed for fast, economical installation in thin metals, including steels of hardness up to Rockwell C27. Provides detailed specification, installation and performance information, including dimensional data for the single installation tool. *Standard Pressed Steel Co.*

**GAUGE HANDLE****177**

Illustrated brochure describes a newly introduced gauge handle that is designed to cut gauge wear, maintain quality control and save gauging time. Cutaway drawing shows construction features and additional drawings illustrate easy to change tapes. *C. E. Foster Gage Corp.*

**RUBBER PRODUCTS****178**

Hundreds of products in the industrial rubber line are covered in this 60-page catalog. Divided into sections on belting, hose, molded products and rubber specialties, the book also includes technical information. *Cincinnati Rubber Mfg. Co.*

**METAL CLEANING****179**

A thorough and attractively prepared 25-page booklet devoted to metal cleaning. Tabulated sections cover the chemistry of metal cleaning; seven techniques of metal cleaning; preparing the metal for paint; pickling, deoxidizing, etching; rust prevention in storage, paint stripping and ultrasonic cleaning. *Oakite Products, Inc.*

**STEEL SHELVING****181**

Included in this brochure are illustrations of open type, semi-enclosed, closed, bin divider type, ledge type and ledge type with bin divider adjustable steel shelving. Diagrams illustrate construction features of the shelving specially designed for storage use in factory, shop, storeroom, warehouse or office. *Supreme Steel Equipment Corp.*

**ELECTRONIC HARDWARE****182**

Plain and insulated terminals, knobs, handles, spacers, and other internal and external electronic hardware are included in this 32-page catalog. Complete specifications and drawings are provided, together with a standard parts index. *Pacific Terminals.*

# EFFICIENCY UP 100%



Crown City Plating Company of Los Angeles is another western manufacturer whose continuing interest in efficiency led to the installation of a Chainveyor overhead conveyor system.

This Chainveyor system eliminates congestion and increases efficiency up to 100% on some jobs. Parts move into the paint department and are handled but twice—once when loaded on the conveyor, again when readied for shipping. Chainveyor does the rest—taking parts through their necessary finishing stages at a constant and sequenced flow.

The accomplishments demonstrated by this and other Chainveyor installations in the West for all types of industry offer infinite opportunities for reduction of cost and increased profits.



For details on the Crown City installation or other low cost conveyor systems engineered in the West for any Western industry write for:

Free Catalog & Detailed Information

QUALITY  
OVERHEAD  
CONVEYOR  
SYSTEMS

# CHAINVEYOR<sup>®</sup>

## CORPORATION

Engineers & Manufacturers

DISTRIBUTORS IN ALL PRINCIPAL CITIES

MAIN OFFICES:

5618 E. WASHINGTON BLVD., LOS ANGELES 22, CALIFORNIA

... for more details, circle No. 59 on Reader Service Postcard

**ABRASIVE WHEEL 183**

Illustrated brochure discusses features and applications of a super-resilient abrasive cloth wheel that simplifies sanding and polishing complex contoured surfaces. Lists grit grades and covers rotation speeds and abrasive loading procedures. *Merit Products, Inc.*

**CHROMIUM DIFFUSION 184**

A new chromium diffusion method similar in many respects to conventional gas nitriding and carburizing is

described in this bulletin. Discusses applications for the process including materials used in exhaust system components such as mufflers. *Alphatizing, Inc.*

**A-C MOTORS 185**

Colorful bulletin shows and describes A-C motors from one to 2000 horsepower. Product features of each motor are clearly outlined and explained for easy selection of the right motor for every application. *Reliance Electric & Engineering Co.*

**PLASTIC PROCESSING 186**

The various types, functions and operating features of thermoplastic processing equipment is shown in this 16-page booklet. Covers extruders, chill roll casting equipment, blow molding equipment, monofilament lines, blown film take-up machines and special equipment. *Modern Plastic Machinery Corp.*

**MOUNTING STRIPS 187**

Brochure about electronic mounting strips discusses advantages of high electrical properties; design to increase production efficiency and contribution to compact circuit design. Covers versatility and adaptability, fastening methods and charts comparative properties. *Electro - Glass Laboratory.*

**INDICATOR SWITCH 188**

A new illuminated push-button switch for a wide range of electronic and electrical control applications is the subject of this bulletin. Contains an exploded view of the actual size; outlines features and charts specifications including size, type, ratings and other pertinent data. *Sylvania Electric Products, Inc.*

**TOOL STEEL 189**

A new tool steel that has extreme shock resistance and more than 350,000 psi is the subject of this technical bulletin. Data includes type analysis, description, physical constants, heat treatment, workability and mechanical properties. *Carpenter Steel Co.*

**CARBON-GRAPHITE 191**

Illustrated engineering guide on carbon-graphite materials for mechanical applications. Grade recommendations are presented for seals and sliding surfaces for a wide range of liquids and gases at operating temperatures up to 500 degrees F., above 500 degrees F., and in the cryogenic range. *National Carbon Co., Div. Union Carbide Corp.*

**ANODES 192**

Bulletin gives complete information on new lead alloy anodes that have been developed specially for use with the new high speed fluoride ion chrome plating solutions. Gives data on four diameter sizes and 30 standard lengths. *Heil Process Equipment Corp.*

## IMMEDIATE CONTACT-PRIVATE MESSAGES WITH A MOTOROLA RADIO PAGER SYSTEM

Your key people can now be reached anywhere about the plant or city—with an economical Motorola Radio Paging System. When a person is paged—a tone sounds in his tiny, personal receiver—he simply presses a button and hears the message. It's just as though someone reached out, tapped the man on the shoulder, and whispered a complete message in his ear. No one else is disturbed—the message is fast, direct and *private*.

There's *profit* in this kind of time-saving communications. Ask your Motorola Representative to show you an actual installation or write today for all the facts.



You're Wanted in  
Mr. Howe's Office

**MOTOROLA**  
radio pager

sales and service everywhere

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC., A Subsidiary of Motorola, Inc.  
1616 Rollins Road, Burlingame, California Dept. WI-16



☐ Mail me full fact kit on Motorola Radio Pager System

☐ Have representative telephone for appointment

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

... for more details, circle No. 61 on Reader Service Postcard



#### VARIABLE SPEED 193

New 112-page book features lubrication free integral and fractional horsepower variable speed drives. Cut-away drawings and photos are used to detail working parts. A number of integral and fractional modifications are illustrated including single, double, and triple reductions, also various horizontal and single and double worm assemblies. *Sterling Electric Motors, Inc.*

#### REINFORCED PLASTICS 194

Brochure reviews current materials, fabrication techniques and applications of advanced reinforced plastics. Special attention is given to high temperature plastics for space age applications. Low and high pressure press molding, high pressure autoclave, vacuum bag and filament wound structures from a variety of materials are discussed. *Swedlow Inc.*

#### TROLLEY CONVEYOR 195

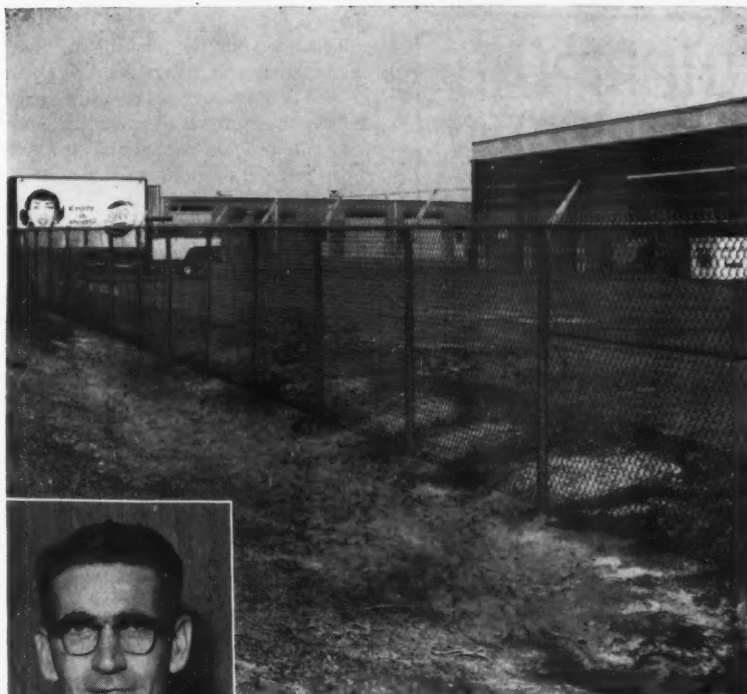
This 58-page book shows what a trolley conveyor can do to reduce manufacturing and handling costs and explains how to select the right trolley conveyor for any requirement. Contains a wealth of photos, layout drawings and complete data for design of a conveyor system, with components, supports, superstructures and guards. *Link-Belt Co.*

#### SLING CHAINS 196

Catalog features alloy, wrought iron and high-test steel sling chains. Contains section devoted to recently developed Sentry sling chains and new Bell-type magnet assembly. Complete descriptions and tables of specifications for all types of slings are included along with a glossary of chain terms and industry coding symbols. *Campbell Chain Co.*

#### RANGE DRIVES 197

Special brochure on the application of an all a.c. controlled speeds systems to range drives for paper, fabric, plastic, and metal strip. Discusses features of push-button speed control and automatic coordination of multiple-motor range drive and goes into detail on how the frequency control of speeds in a.c. squirrel cage motors permits motors to start, stop, accelerate to full speed and accept speed adjustment while running. *U.S. Electrical Motors Inc.*



says W. L. Hause, Assistant to the President,  
Pepsi-Cola Bottling Co., Inc., Pennsauken, N. J.

### "... makes a safe outdoor 'garage' for our 45 trucks ..."

"Our plant yard is a very necessary part of our operation, so our Anchor Fence must satisfy a number of needs. And it does. Keeps out trespassers of all ages, makes a safe outdoor 'garage' for our 45 trucks, permits all-weather storage for a great amount of other equipment, too. Anchor Fence has also proved ideal for controlling traffic on our property—not only in and out of our plant yard, but around it, as well. As for maintenance—our first Anchor Fence was installed in 1957, and it's still repair-free."

For more information on how Anchor Fence can help your operation, call your local Anchor Man. For your free Anchor Fence Industrial catalog, fill out and mail in the coupon below.



Plants in Baltimore, Md.; Houston, Texas; Whittier, Calif.  
Sold direct from factory branches in principal cities.

#### ANCHOR FENCE

627 Putnam Drive, Whittier, California.

Please send me my free copy of the Anchor Fence Industrial catalog.

Name.....

Company.....


Street.....

City..... Zone..... State.....

... for more details, circle No. 62 on Reader Service Postcard

**"LUBRIPLATE  
LUBRICATES  
EFFECTIVELY  
IN EXTREME  
HEAT"**

—says KILPATRICK'S BAKERY  
San Francisco and Oakland, Calif.



"We have been using a LUBRIPLATE Lubricant as an all-purpose grease for over four years. Bearing trouble was eliminated even where we had excessive heat conditions, and our bearing replacements were cut to a minimum. In all my experience as an engineer, I have never used a lubricant that gave the excellent results accomplished with LUBRIPLATE."

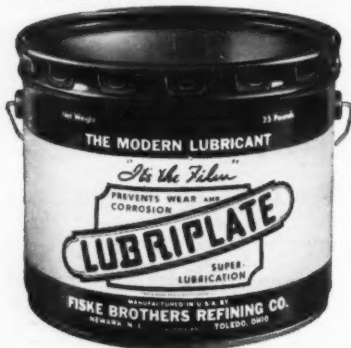
KILPATRICK'S BAKERY  
K. K. Weber, Chief Engineer

**REGARDLESS OF THE SIZE AND  
TYPE OF YOUR MACHINERY,  
LUBRIPLATE GREASE AND  
FLUID TYPE LUBRICANTS WILL  
IMPROVE ITS OPERATION AND  
REDUCE MAINTENANCE COSTS.**

LUBRIPLATE is available in grease and fluid densities for every purpose... LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.



For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" ... a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



... for more details, circle No. 63

## VALVE FLOW

198

Two methods for determining flow characteristics of valves are described in this newly revised bulletin. One section covers fundamental method of determining pressure drops for all types and sizes; another section offers a rapid method of estimating the pressure drop through Venturi type valves. Rockwell Mfg. Co., Nordstrom Valve Div.

## CENTRIFUGAL GALVANIZERS 199

Bulletin introduces an automated galvanizer designed for conveyORIZED galvanizing lines. Describes operation of a model for limited production, a model for high production, and a breaker for use with the galvanizers to effectively separate washers and similar flat parts. Leon J. Barrett Co.

## BUCKET ELEVATORS

211

A generously illustrated 84-page manual designed to simplify the selection and application of bucket elevator systems for bulk handling of chemicals, chips, coal, fertilizer, grains, gravel, limestone, ore, sand,

slag, slate, stone, sugar and other materials. Basic types shown are centrifugal discharge, perfect discharge, continuous bucket, gravity discharge elevator-conveyors and pivoted bucket carriers. Webster Mfg. Co.

## SAFETY KIT

212

Illustrated plant safety kit is designed to make fork lift truck operators more efficient and safety conscious in their materials handling work. Contains a pocket-sized lift truck operator's guide, safety cartoons for bulletin boards and lift truck route posters printed in bold letters. Towmotor Corp.

## TAKEUPS

213

Takeups, in seven frame styles and equipped with sleeve, ball or roller bearings, are described in this 16-page book. Lists more than 320 different takeup units, designed to provide an easy, positive means for adjusting head or foot shafts on conveyors or elevators. Link-Belt Co.

## RAIL CAR WEAHER

214

A high-speed electronic weigher that is able to balance and print out in less than three seconds as cars roll by on rails, is described in this bulletin. Covers capacities, instrument housing, control circuits, power requirements and optional equipment. Fairbanks, Morse & Co., Electronics Div.

## TORQUE-TENSION

215

Design manual includes 12 tables listing specific recommended installation torque values for thin and standard height UNC and UNF hex type nuts. Discusses factors to be considered in selecting a tightening torque; also the effects of the use of lubricants. Additional data includes tables of tensile stress areas and bolt strengths. Elastic Stop Nut Corp. of America

## TESTING MACHINES

216

Brochure devoted to testing machines for determining the physical properties of metals and other materials. Covers Brinell hardness testing machines, Pentrascope, ductility testers, tensile and compression testing machines, transverse testers, hydrostatic and pneumatic testing machines, proving rings, calibration presses and specials. Steel City Testing Machines, Inc.

## CUT COSTS... of MIXING, BLENDING, TUMBLING and CLEANSING!



**MORSE**  
MODEL 200  
PORTABLE DRUM  
**ROTATOR**

**fast • efficient • economical**

The PORTABLE ROTATOR, designed by MORSE, meets today's ever-present need to save time and labor. Handles 30 and 55 gal. drums; 1 and 5 gal. containers with special attachment; weight capacities to 500 lbs. Weighs only 135 lbs. Available with 10, 20, or 40 rpm. Exclusive features assure smooth, thorough operation.

**SAFE, EASY LOADING  
BY ONE MAN...**

Also available  
with explosion-  
proof or  
air-driven motors.



For Free MORSE Catalog, write to:  
**MORSE**  
MANUFACTURING CO., INC.  
769 West Manlius Street, East Syracuse, N. Y.

... for more details, circle No. 64

## RECEPTACLES

217

Generously illustrated booklet contains a diversified selection of specialized materials handling receptacles made of a high-strength plastic. Items included are: trays, utility receptacles, boxes, trucks, cans, bakerboy baskets, waste receptacles, cases, specials, hardware, dolly trucks and casters. *National Vulcanized Fibre Co.*

## CONDUITS

218

Booklet contains 60 pages detailing applications of conduits in hazardous locations. Quotes National Electrical Code articles along with recommendations for "Condulets" meeting the various Code requirements. Includes more than 300 product photos. *Crouse-Hinds Co.*

## METALWORKING

219

New 32-page catalog gives detailed information on precision metalworking equipment, covers both hand and powered machines. Lists related accessories and expendables including single station punches and dies, adjustable punches and dies, standard V-type press brake dies, roll-form and snap-form dies. *Di-Arco Corp.*

## TURBINE FLOWMETERS

221

Two new models of a turbine flowmeter, propeller type that transduce liquid velocity to millivolt signal, are described in this specification bulletin. Six new transistorized totalizers and batch controllers designed for use with these turbine meters are described in an auxiliary bulletin. *Fischer & Porter Co.*

## LAMINATED PLASTICS

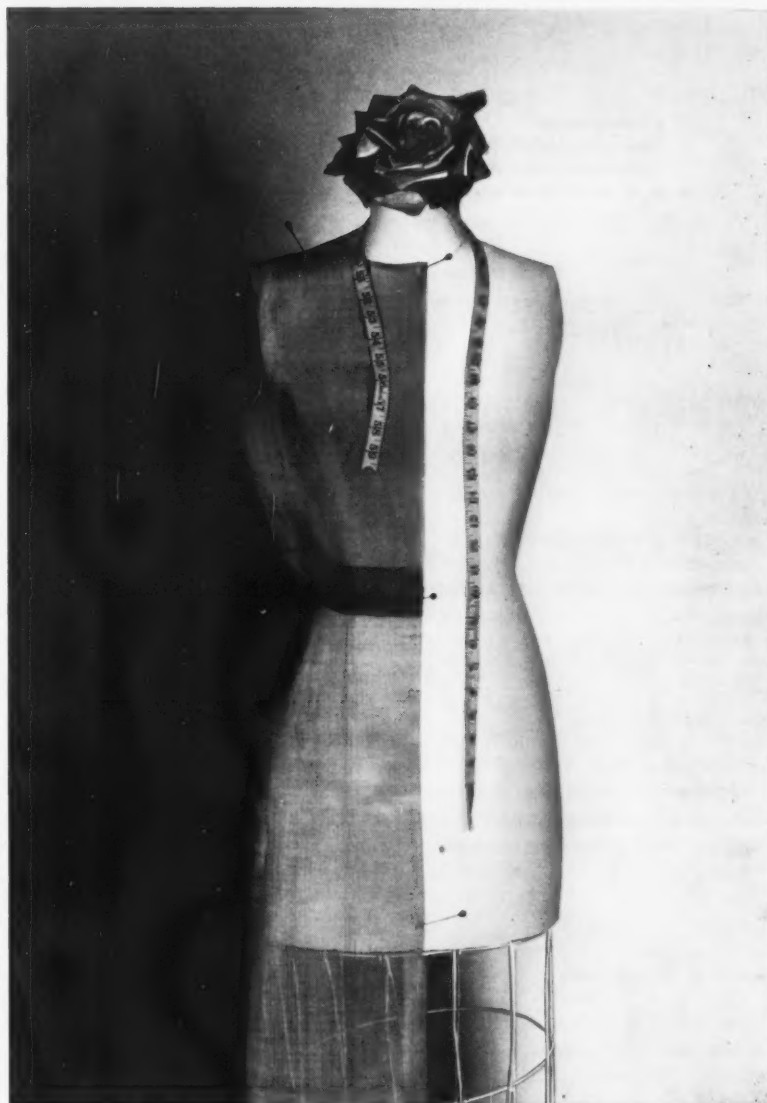
222

Basic application information and engineering data on laminated plastics and vulcanized fibre for electrical, electronic and mechanical components is included in this brochure. Gives suggested applications, corresponding NEMA grades, military specification, color and forms and sizes in which available. *Taylor Fibre Co.*

## ALUMINUM SULFATE

223

Comprehensive 40-page handbook on the properties and uses of aluminum sulfate. Essentially a reference booklet, the publication includes data on the manufacture of alum, grades available, principal uses and methods of handling. Contains a series of convenient conversion charts and tables. *Stauffer Chemical Co.*



## The most versatile cloth in any industrial wardrobe

Ladies suits? No, *they're* not made from CF&I Industrial Wire Cloth. But thousands of products *are*—from kitchen strainers to carburetor filters.

CF&I Industrial Wire Cloth is precision-made in our Oakland plant in practically any mesh, wire size or weave from many different metals. For a handy reference on industrial wire cloth, ask your CF&I sales office for free copy of Catalog MS-661 Rev.



The Colorado Fuel and Iron Corporation  
Denver • Oakland • New York  
Sales offices in Key Cities

... for more details, circle No. 65 on Reader Service Postcard



# CLEANING & COATINGS

FOR YOUR FREE COPY Use Post Card on page 90

## SPECIAL MANUALS

### Coatings for Galvanized Metal

224

A specially formulated and field-tested white coating for galvanized metal surfaces is introduced in this folder. Covers surface preparation, application, mixing and thinning. Developed for use on siding, ductwork, vents, roofs and containers. *Rust-Oleum Corp.*

### Paint Specifications

225

Twenty-page 1961 paint specification book gives recommendations for finishing procedures and products. In addition to a model set of general conditions and recommended specifications for interior work, exterior work and special finishes to meet particular conditions, a section is devoted to product descriptions including drying times and covering capacities of the various finishes. *W. P. Fuller & Co.*

### Cleaning Compounds

226

Catalog of industrial cleaning compounds includes listing and description of building and maintenance cleaners and applications. Outlines 13 floor cleaners, discussing application for each product. *E. W. Smith Chemical Co.*

### Paint Selector

227

This handy "dial-a-paint" selector unit reveals the correct paint for every interior, exterior or metal surface. A turn of the dial to any of 29 different types of paint jobs quickly brings the required type of paint into view. Covers emulsion and oil base paints. *Luminall Paints, div. National Chemical & Mfg. Co.*

### Resin Finish

228

Attractively illustrated brochure describes three basic types of Epon resin coating systems, desirable properties of the formulation, uses and how to apply. Contains series of photographs and descriptions of industrial applications. *Shell Chemical Corp.*

### Cold Coating

229

Pamphlet about a cold, brush-applied, solvent-type primer described as the best inhibitive primer to end undercutting. Recommended especially for application in severely contaminated industrial and marine atmospheres, brochure explains how it is prepared and applied, where it is used. *Tar Products Div., Koppers Co., Inc.*

### Monolithic Membrane for Roofing

231

Brochure about a protective membrane for roofing, re-roofing and waterproofing that incorporates glass reinforced fibres into asphaltic compounds. Explains advantages of this new Monoform System and easy application of the material with a precision engineered gun. *Flintkote Co.*

### Dry Base, Rough Masonry Finish

232

Data about a dry compound which mixes instantly with water to form a flat, white, one-coat finish for unpainted stone, brick, cement or other rough masonry surfaces. *Sevigney Co.*

### Maintenance Coatings

233

Coatings for the food, chemical and paper industries that can be applied with a minimum of shut down of plant operations are described in this brochure. Gives data on an activated epoxy coating, a colored aluminum coating, zinc shield, metal coatings, a special coating for damp walls and ceilings, heavy-duty floor finishes and a coating for sub-freezing maintenance painting. *Wilbur & Williams, Inc.*

### Epoxies

234

Interesting paper written by the president of one of the companies which pioneered in the development of epoxies, explains what epoxies are, emphasizing their economical use in solving maintenance problems. *Hauger-Beegle Associates, Inc.*

### Masonry Paint

235

A rubber latex paint made specially for masonry is described in this bulletin. Outlines advantages of coverage with superior hiding, abrasion and stain resistance, stability, fast curing, and alkali and moisture resistance. Includes information on surface preparation, coatings, application and approximate surface coverage per gallon. *California Paint Div., California Stucco Products of New England, Inc.*

### Heat-Proof Protective Coatings

236

Four types of protective coatings to meet every temperature condition are described in this bulletin. Gives information on types, temperature range, colors, coverage and where the coatings can be used. *Markal Co.*





**1 design planning**  
using long and varied experience,  
Mahon engineers work with your  
staff on initial layout stages

## MAHON'S INDUSTRIAL EQUIPMENT DIVISION . . .

### designs equipment but engineers results

from start to any finish your products  
require . . . in a coordinated, fully  
responsible, one-source service

The 'finishing touch' of Mahon means more than  
just painting equipment—it means peak-efficiency  
methods for the best finishing of quality products.  
Mahon's Industrial Equipment Division provides a  
unique one-contract service that is safe, sure—and  
more often than not, the most economical—answer  
to any industrial finishing problem. Mahon's  
multiple-area benefits are worth investigating. Get  
in touch with Mahon and prove it for yourself.

. . . and Mahon  
finishing equipment  
is now available  
from Mahon's  
West Coast plant

### 2 fabrication

of approved design is made, tested,  
shipped and installed by one organi-  
zation—Mahon . . . to facilitate use.



### 3 erection & installation

of equipment and structures is  
speeded by skilled Mahon crews, com-  
pletely familiar with finishing systems.



### 4 service

by Mahon means constant, trouble-  
free production of your quality prod-  
ucts for maximum investment return.



**MAHON-WEST / 2600 Monterey, Torrance, Calif.**

WESTERN OPERATION OF  
**THE R. C. MAHON COMPANY**  
Detroit 34, Michigan

Mahon-West Sales-Engineering offices at 2600 Monterey,  
Torrance, Calif. and 821 Market St., San Francisco.

# MAHON

. . . for more details, circle No. 66 on Reader Service Postcard

# MAYHEW FLUID RECONDITIONERS

For Economical Servicing of  
INDUSTRIAL, AIRCRAFT & MISSILE Fluids

## • PORTABLE MODELS



MT-1

MT-2

**Standard Equipment—**  
Extension Cord—25 ft.  
Adjustable Relief Valve  
Visulator Strainer  
Adjustable Transfer Valve



MT-4

With Micron Ratings to Meet the Below  
SPECIFICATIONS:

MODELS	MT-1	MT-2	MT-4
Width:	12" x 12"	12" x 24"	24" x 24"
Height:	36"	36"	36"
Weight:	107 lbs.	190 lbs.	320 lbs.
Motor:	1/2 hp - 115 V.	3/4 hp - 115-230 V.	1 hp - 115-230 V.
Pump:	1/2"	3/4"	1"
Hoses:	1/2" x 6'	3/4" x 8'	1" x 10'
Flow Rate:	3 GPM	6 GPM	12 GPM

— Voltage and Phase as Requested

Available in Stationary Models or Custom Built  
To Your Specifications.

WRITE FOR FREE LITERATURE!

## MAYHEW PRODUCTS CO.

5316 South Santa Fe, Los Angeles 58, Calif.  
LU 2-2958

In San Francisco EX 2-8505  
In Seattle MU 2-2171

... for more details, circle No. 67 on Reader Service Postcard

## Corrosion-Proof Floors

237

Group of design drawings and specifications for corrosion-proof engineered floors include a guide to selecting acid-proof cements. Consists of nine detailed drawings of typical engineered flooring installations and specification sheets describing the 13 elements generally utilized in corrosion-proofing. *Celcote Co.*

## Pipeline Coatings Chart

238

A complete family of primers and enamels for pipeline protection is described in this illustrated brochure. Includes a color-coded enamel selector as an aid in determining the correct protective coating system for specific ranges of field conditions. Discusses the facts behind the protective properties of coal-tar base enamels and illustrates their use in a number of typical applications. *Tar Products Div., Koppers Co., Inc.*

## Cleaning Materials and Floor Products

239

Product information on floor cleaners contained in this bulletin include a wax stripper for removing old wax deposits from all types of floors. Also, a waxed cleaner which contains soap plus wax, leaving a thin wax film, and other floor cleaning agents and coatings. *Concord Chemical Co., Inc.*

## Protective Linings & Coatings

241

Booklet for maintenance engineers opens with discussion on synthetic rubber linings and coatings including complete data on recent introductions, Hypalon and Viton. Contains suggestions concerning application and maintenance of the two new synthetic rubbers as well as Neoprene. *E. I. du Pont de Nemours & Co.*

## Floor Maintenance

242

How to remove various types of stains from all types of resilient floors and a discussion of floor finishes, waxes and cleaners are included in this 24-page guide to the maintenance of commercial floors. *Armstrong Cork Co.*

## Glass Reinforced Roof Coating

243

A roof coating that consists of a spun glass mat in roll form, plus a special liquid emulsion is described and illustrated in this bulletin. Covers special features of the glass reinforced coating for repairing and resurfacing weathered roof decks. Discusses preparation and application of the material. *Barley-Earhart Corp.*

## Rust Preventive

244

Brochure covers features, applications and packaging of a specially formulated spray-on, moisture-absorbing, lubricating mist which can be used on wet or dry surfaces for positive, long-term protection against rust. *Rust-Lick, Inc.*

## Protective Coating Systems

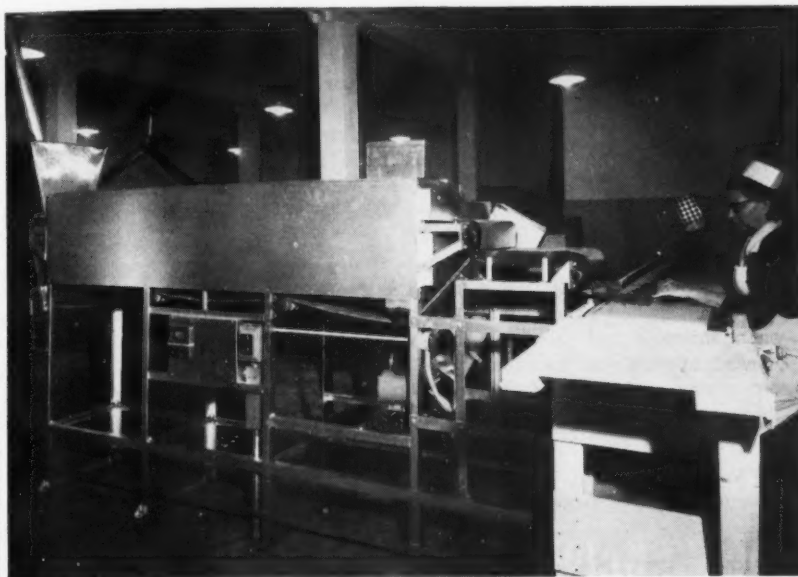
245

Bulletin contains information on protective coating systems for various industrial uses. Coatings for special applications are described and illustrated with a wide selection of color chips. Included are materials for top coatings; primers for sound rusted surfaces; for new, bare metal; floor coatings; heavy-duty chemical resistant coatings; coatings for galvanized metal; and water resistant coatings. *Rust-Oleum Corp.*

# MONTGOMERY BROTHERS, INC.

MONTGOMERY BROTHERS, INC.  
ENGINEERING REPORT NO. 12

CLIENT: A West Coast Food Process Plant  
PRODUCT: Chromalox Strip Heaters



## Montgomery Brothers, Inc.

### REPRESENTS

Edwin L. Wiegand Co.  
Commercial Filters Corp.  
Pacific Chromalox  
Sta-Warm Co.  
Kanthal Corp.  
Sherman Industrial Electronics Co.  
General Equipment Mfg. Co.  
Aquamatic Valve, Inc.  
Radcor, Inc.



## 150 POUNDS OF PUMPKIN SEEDS PROCESSED PER HOUR IN A MONTGOMERY BROTHERS 20 KW CONVECTION OVEN!

The oven pictured above is the result of an inquiry from a food process company that desired to roast 150 pounds of pumpkin seeds per hour.

After a thorough engineering investigation into the characteristics of pumpkin seeds, Montgomery Brothers was able to come up with a preliminary design. Since the customer desired to be supplied with a complete unit, we finished the fabrication and the result is pictured — installed in his plant.

The unit is designed to operate on 208 volts, 3 phase. The total power outlet is 20,000 watts. The belt is stainless steel driven by a variable speed drive and the power panel is complete with a Partlow M-2 thermostat, a contactor, and a circuit breaker. There is a total of 16 CHROMALOX strip heaters rated at 1250 watts each.

As in the above installation, Montgomery Brothers are equipped to supply a complete package designed and engineered specifically for your requirement.

Call us today for further information. There is no obligation.



SAN FRANCISCO  
1122 Howard St.  
UNDERhill 1-3000

LOS ANGELES  
4800 District Blvd.  
LUDlow 9-6321

SEATTLE  
911 Western Ave.  
MAIn 4-7297

PORTLAND  
1632 N. W. Johnson St.  
CApitol 3-4197

## Montgomery Brothers Inc.

SPECIALISTS IN ELECTRIC HEATING, FILTRATION & CONTROLS FOR OVER 30 YEARS

... for more details, circle No. 68 on Reader Service Postcard

### Modified Epoxy Coatings

246

Brochure about a new two-phase coating that is described as offering outstanding corrosive, abrasive and weather resisting properties. Covers specifications, application procedures and conditions, surface preparation, types and descriptions. Lists applications including aluminum, steel, fiberglass, wood, concrete, asphalt and ceramic surface. *Tuffy Products, Inc.*

### Coating for Porous Masonry

247

A coating for porous masonry construction that provides a complete moisture seal and retains a permanently bright glossy finish is the subject of this bulletin. *Gates Engineering Co.*

### Corrosion Control Coatings

248

Illustrated folder is a practical guide to primary protection and preventive maintenance of all metal surfaces subjected to chemical attack of acids and alkalies, fumes and gases, active industrial solvents and severe industrial weathering. Includes application information and a chart of available colors. *Truscon Laboratories.*

### Acid and Alkali Resistant Paint

249

Bulletin outlines eight colors in which this acid and alkali resistant paint is available. Covers applications including exterior and interior surfaces, piping, and its use where smoke and chemical fumes are prevalent. *Speco, Inc.*

### Flexible Film Floor Finish

251

A protective finish for floors with or without bactericide is the subject of this brochure. Explains what it is, what it does, performance and applications on all types of resilient or semi-resilient floor coverings and sealed wood; on terrazzo and similar surfaces. *Associated Just Distributors, Inc.*

### Chemical-Resistant Floor Surfacing

252

A heavy-duty, chemical-resistant floor surfacer composed of a self-curing plastic compound in three parts, mixed and applied by the user, is the subject of this brochure. Includes technical and application data. *Stonhard Co. Inc.*

### All-purpose Interior Paint

253

A co-polymer polyvinyl acetate for all interior walls, ceilings and wood trim is the subject of this bulletin. Covers applications, surface preparation, coatings, application and outlines advantages of the Latex paint. *California Paints Div., California Stucco Products of New England, Inc.*

### Aluminum Coating

254

Literature about a green aluminum coating for beautifying and protecting metal, wood and masonry surfaces indoors and out. Describes features and application as a top coat on exterior and interior surfaces, on tanks, structural steel, metal sash, wire fences, metal roof and buildings. *Rust-Oleum Corp.*

## Only GF offers shelving "interchangeability"

### SAME COMPONENT SHELVING CAN NOW BE USED FOR LIGHT OR HEAVY LOADS

Light and flexible loads, or heavy loads? Now you can handle storage of both with the same basic shelving components. Only GF shelving interchangeability offers you a choice of shelving—clip-type for light loads, nut and bolt for heavy—with the same parts.

The complete line of GF steel shelving makes it easy to meet any shelving requirement. It's unmatched for variety of stock combinations and sizes, heights, dividers, reinforcements, boxes, trays and other components.

#### Send for free literature:

THE GENERAL FIREPROOFING CO., Dept. WI-13  
SAN LUIS OBISPO, CALIFORNIA

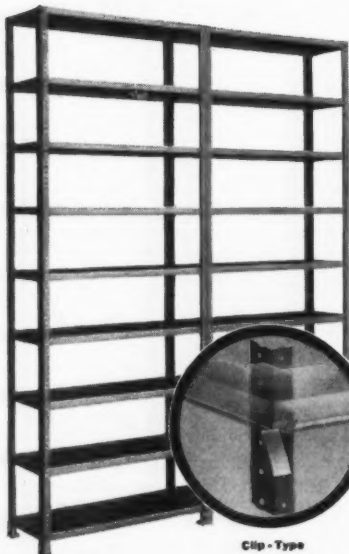
Please send me full information on what exclusive GF shelving "interchangeability" can mean to us.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

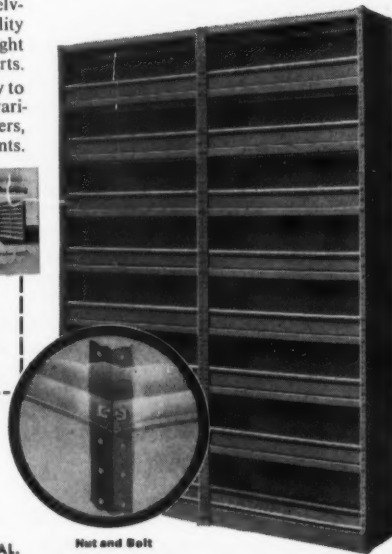
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_



Clip-Type

# GF

SHELVING MANUFACTURED IN SAN LUIS OBISPO, CAL.



Nut and Bolt

... for more details, circle No. 69 on Reader Service Postcard



### Protective Decorative Coatings

255

Informative booklet about elastomers as protective and decorative coatings for masonry and wood walls, siding, panels, and wood and concrete floors. Gives typical properties of two synthetic rubbers and two urethane coatings. *E. I. du Pont de Nemours & Co.*

### Protective Products

256

New 36-page protective products catalog contains technical information for roof construction and maintenance, below grade membranes, heavy duty mastic floors, ground seal coating, light and heat reflection, insulation, anti-corrosion protection and many others. Covers application methods and guide specifications. *Pioneer Div., Flintkote Co.*

### Selecting Floor Coatings

257

Six coating systems which give chemical resistance, abrasion resistance and are engineered to solve many of the tougher floor problems are described in this bulletin. Included are modified phenolics, epoxy-amines, epoxy-polyamides and a resin latex. *Carboline Co.*

### A Coating for Tanks

258

Comprehensive report on an epoxidized rubber coating and how its use reduces maintenance costs of tanks. Discusses coating's resistance to effects of inorganic chemicals such as anhydrous ammonia, hydrochloric, sulphuric and phosphoric acids. Discusses how often tanks and cylinders should be painted and painting methods. *Spatz Paint Industries, Inc.*

### Industrial Maintenance Finishes

259

Booklet about a family of synthetic resins includes section devoted to industrial maintenance finishes. Includes table of properties which covers general, chemical, physical and electrical properties of three synthetic resins. *Chemical Div., Goodyear Tire & Rubber Co.*

### Concrete Floor Maintenance

261

Pamphlet gives step-by-step procedures for the curing, sealing, and continued maintenance of both new and old concrete floors. Outlines methods of preventing dusting and "blooming," and of minimizing stain accumulation on concrete. How to remove soil and stains from concrete is also explained. *Puritan Chemical Co.*

### Painting Zinc and Cadmium Surfaces

262

Brochure about a material that greatly retards the formation of oxides and carbonates and keeps the paint tightly bonded to the metal by developing an insoluble zinc phosphate insulating film between them. Applications include cornices, rain gutters, spouting and eave troughs, ventilators and furnace ducts, liquid storage tanks, and building siding and roofing. *American Chemical Paint Co.*

### Floor Cleaners

263




This booklet suggests a basic program for care of asphalt tile, rubber, vinyl, linoleum, terrazzo and other floors. Covers wet, damp and dry mopping, machine scrubbing, waxing or polishing, important don'ts, treatment of marble and cork floors and floor care hints. *DuBois Chemicals, Inc.*



**IT'S A FACT... 2 out of 3 truck handling operations can be improved with the proper tire selection**

Monarch takes all the guesswork out of selecting the right tire for every job. Now, famous MONOLOK construction is available in 4 special types and 3 proven treads. Select the particular tire to fit your service requirements in any industrial location under most punishing conditions. Check handy chart and specify tire designed to meet your needs . . . tough smooth-running Mono-Cushion . . . sure-footed Traction . . . all-purpose Universal. Your local Monarch representative will help you make the right selection. **Call today or write for Bulletin 457 B.**

**NOW ALL 12 GREAT TIRES 3 PROVEN TREADS  
4 SPECIAL COMPOUNDS WITH MONOLOK**

COMPOUNDS	MONO-CUSHION	UNIVERSAL	TRACTION TREAD
			
HEAVY-DUTY	Compound T-5100 provides maximum protection against metal scrap, rough surfaces, heat, chemicals and overloads.		
NEOPRENE	Special compound for use in high temperatures, strong solvents and chemicals.		
NON-MARKING	Eliminates skid-marks and smudges on tile, painted or decorated floors.		
STATIC CONDUCTING	Developed for use in hazardous locations.		

10296-MR



923 Fisher Bldg.  
Detroit 2, Mich.

4140 West Fullerton  
Chicago 39, Ill.



**THE  
MONARCH  
RUBBER CO.**  
280 Lincoln Park  
Hartville, Ohio  
Western Warehouse  
Reno, Nevada

... for more details, circle No. 71 on Reader Service Postcard

# NEW EQUIPMENT

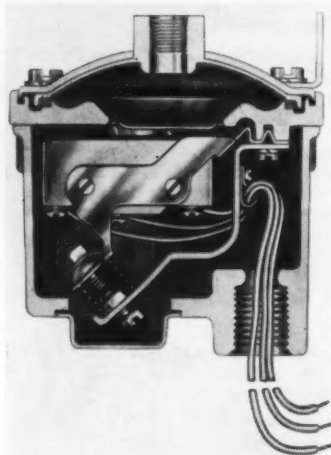


FOR WESTERN PLANT OPERATION, PRODUCTION AND MAINTENANCE

USE POST CARD PAGE 90, For Information on Products Described

## PRESSURE SWITCHES

... diaphragm type with improved accuracy



Improved accuracy, reduced cost and higher proof pressure are advantages accomplished by design innovations in the new line of diaphragm pressure switches. Accuracy of  $\pm 0.5\%$  as compared to the customary  $\pm 1.0\%$  is guaranteed for the new switches. Employment of the erector set technique, a standard body to which interchangeable compon-

ents such as contact elements, capsules, terminal block housings, explosion proof housings, etc. may be attached, permits use of mass-production methods and allows wide choice in specifications that approximate a custom made switch. Proof pressures to 600 psi and adjustable ranges from vacuum to 400 psi are available. The higher ranges make it possible to use inexpensive diaphragm pressure switches on installations that presently require high priced bourdon tube models. *Barksdale Valves*

## ALLOY STEEL

... has added corrosion resistance

High strength columbium-treated steels with added atmospheric corrosion resistance are being marketed. Addition of copper (0.20 minimum) to the columbine-treated grades—designed J LX-45-W, -50-W, -55-W and -60-W—provides a level of atmospheric corrosion resistance approximately twice that of mild carbon steel and equal to the level found in some of the high strength, low alloy proprietary grades. These columbium-treated steels have minimum yield properties for respective grade designations of 45,000, 50,000, 55,000 and 60,000 pounds per square inch. Both the regular columbium-treated and the copper-bearing grades are available in gages and sizes approximately paralleling those in which Jalten (a high strength, low alloy grade) is sold. They are available in plates up to  $\frac{3}{8}$ -inch inclusive; in both hot-rolled and cold-rolled sheets; and in hot rolled bars, small shapes and structural shapes. *Jones & Laughlin Steel Corp.*

264

## RADIO TOWERS

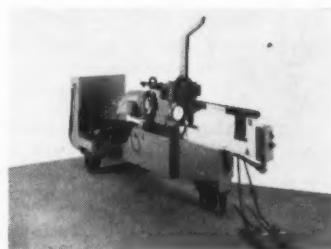
... from 10 to 500 feet high

A new line of two-way radio communications towers ranging in height from 10 to 500 feet has been introduced. The line includes eight bolted or welded guyed towers and one self-supporting model. Five of the guyed towers are of bolted, tubular steel construction. The maximum height of the smallest of these models is 130 feet while the tallest can be raised to 440 feet. Two other guyed towers in the new line are constructed of welded solid steel cross-braces on tubular legs. The two units have maximum heights of 150 and 200 feet. Towers in all seven models have a windload rating of at least 30 pounds per square foot. Possible antenna loads vary from one antenna for the lightest models to five for the heaviest model. The line also includes a very heavy duty bolted angular steel tower which can be raised to 500 feet with 40 pounds per square foot windload rating. This tower will support five antennas. The new self-supporting tower has a standard maximum height of 120 feet. Designed especially for urban installations, it requires only a maximum eight foot square ground area. *Motorola, Inc.*

266

## SEMI-AUTOMATIC STRAPPER

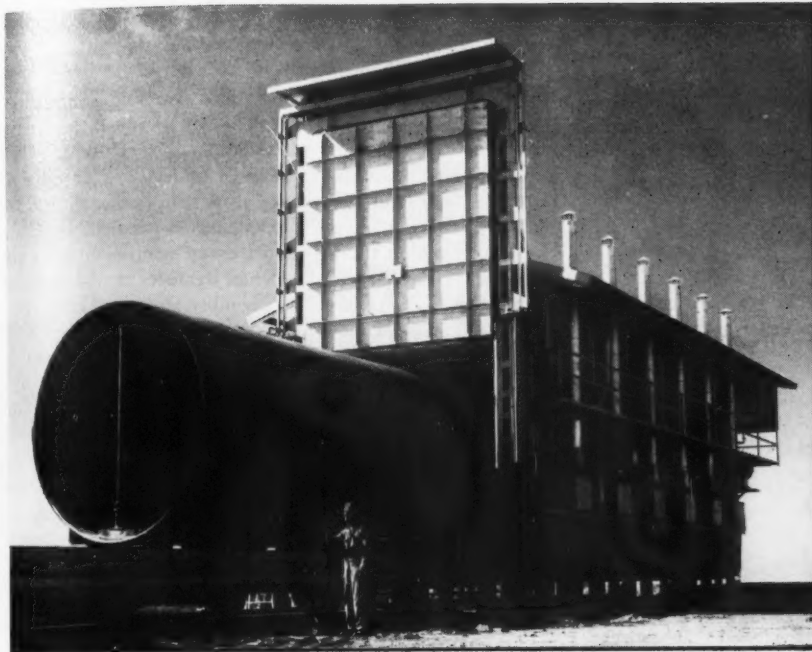
... for production packaging lines



A new semi-automatic power strapping machine has been introduced. Called the M20L, it differs from automatic models by having only the lower strap chute. In using the machine the operator

positions the package, steps on the feed switch, inserts strap in the lower chute, and steps on the cycle switch to tension and seal the strapping. While similar to standard strapping machines, the M20L's higher tension, faster feed and unlimited strap take-up make it suitable for higher production packaging lines. The lower chute of the new machine can be fitted into a narrow slot between the ends of conveyor sections; supplementary table or roller sections are unnecessary, though available as accessories. Standard chute lengths are 18-in., 24-in., or 30-in. Vertical strap guides, which deflect the strapping over the package toward the operator, will clear packages 15-in., 21-in. or 27-in. high. *Signode Steel Strapping Co.*

267



*Some-  
thing  
**NEW**  
has been  
added*

## Stress Relieving- Normalizing- Heat Treating- At Our Salt Lake Plant

Two sections of penstock for the Carmen-Smith Hydro-electric project are here shown during stress-relieving process in Graver's brand new Stress-Relieving Furnace. Each section is 12'0" diameter x 25'0" long x 1 1/16" thick and is part of 1265-foot penstock installation for the Eugene Water and Electric Board project in the Willamette National Forest near Eugene, Oregon. The penstock is cradled on a specially constructed flat car bed that serves as a bottom for the huge furnace.

The furnace measures 15'0"W x 15'0"H x 52'0"L — is gas fired and has a heat range of 100° F. to 2150° F. The accessory equipment includes multipoint temperature recorder and four-zone temperature and program control.

Modern steel fabrication requires the aid of modern metallurgy. With the completion of the new furnace, Graver combines these processes to create the finest fabricated metal products available to industry. This facility — one of the West's largest — is conveniently located on rail siding at our Salt Lake City plant and is available for use by Western steel fabricators. Graver is fully equipped with furnace and fabricating facilities and know-how to handle the individual specifications of industry.

Call our office or ask your Graver representative for detailed information or a quotation on your specific job.

Western Area Sales offices in San Francisco and Arcadia, California; and Salt Lake City, Utah.

Plants in East Chicago, Indiana; Edge Moor, Delaware; Houston, Texas; Salt Lake City, Utah; Lockeford, California.

### GRAVER TANK & MFG. CO.

267 West 1st South

DA 8-8341

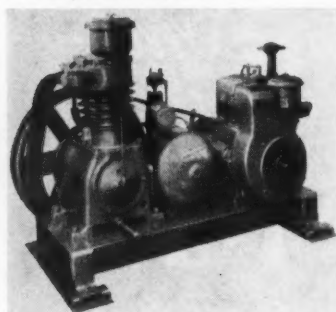
Salt Lake City, Utah



... for more details, circle No. 72 on Reader Service Postcard

## AIR COMPRESSOR

... is gasoline engine driven



CFM at 175 psi, it provides an adequate supply of air to operate most air tools. The engine is equipped with electric starter and battery cables are provided. *Kellogg-American Div., Scaife Co.*

268

Just introduced is a heavy duty gasoline engine driven air compressor, Model GF-352-XSB. It is suitable for mounting in service trucks or for stationary installations when electric current is not available. Having a displacement of 46.3

## CABLE CONNECTOR

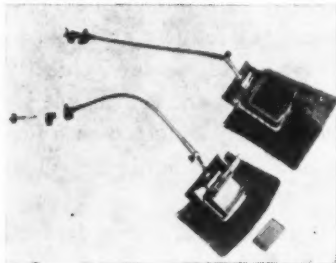
... positive locking with no moving parts

A new cable connector has been developed that assures positive locking with no moving parts. No springs, catches or special equipment is needed for attaching to the cable. A twist of the wrist locks the "twin-wedge" connector into an efficient electrical connection that won't arc or overheat. The streamlined design of the unit is said to prevent separation or snagging when the cable is manipulated. It is equipped with neoprene covers to resist oil and grease damage. The connector provides a greater contact area than the cross-section area of the largest cable with which it can be used. Field tests have shown negligible voltage drops at 500 amperes. The unit is made in two sizes: model 120 for 1/0 - 2/0 cable, and model 340 for 3/0 - 4/0 cable. *Ampco Metal, Inc.*

269

## WELDING SHIELD

... takes hood off welder



cations where operators must have complete visibility of the weld but where frequent removal of hoods are required. The Shield All Weld Viewer is available in two models. Model WH6B has a flip-up front for natural viewing. A 6-power magnifier can be installed to enable the operator to follow a joint when welding at low amperages on thin material and a light can be installed under the lens to aid viewing. Model WH-11 has a much larger viewing area of 20 sq. in. Both models are equipped with pliable leather skirts, which hug the work area closely and provide additional protection to the operator. *Air-line Welding And Engineering.*

A flexible mounting weld shield has been developed that can be attached to welding jigs, fixtures or positioners and eliminates the necessity for welders to wear hoods. The device is especially suitable for appli-

## WORK BENCH

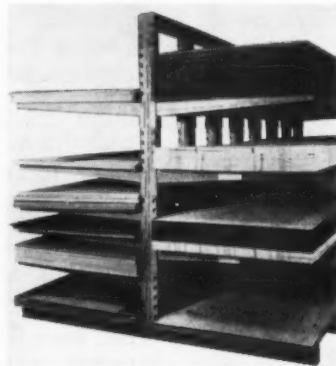
... has no bolts, is adjustable

A heavy duty work station has just been announced. This bench is shipped knocked down for quick and easy assembly without the use of bolts, nuts or tools. The unit assembly consists of two sets of legs, a pair of top-support bars and the bench top. In assembling, the support bars are merely slipped into conveniently spaced key-hole slots on the legs and the top is dropped into position over the bars. The chief feature of the boltless work bench is its ease of assembly, low cost and versatility. Shelves, or fractional shelves, may be had. The bench may be used as a single unit, or grouped in multiple units in a straight line, at right angles or in a square arrangement. The bench can be used for innumerable purposes in any industry or warehouse, i.e. assembly lines, inspection, packaging, shipping and receiving, service and repair work, heavy machinery and light duty work, temporary storage, display purposes, inventories — even as a low scaffold. *Sammons & Sons*

272

## RACKS

... have adjustable cantilever arms



nuts are needed. Arms can be moved in a few seconds as the need arises. The racks are furnished in standard stock sizes or special designs to suit any requirement. *Green-Penny Co.*

An adjustable cantilever arm rack for storing plywood, sheet stock, bar stock, tubing, pipe, furniture, etc., has been developed. Movable arms are attached to vertical columns without tools. A unique built-in locking device holds the two parts rigidly together. No bolts or

273

## ALUMINUM ALLOY

... for castings of 50,000 psi tensile strength

Aluminum castings with tensile strengths up to 50,000 psi may be made under normal foundry conditions through use of a new alloy. Designated Tens-50, the alloy was developed for use in critically loaded aircraft and missile structures. It may be used for any application demanding high-strength performance along with low weight. Tens-50 castings have the following typical mechanical properties. Sand castings: tensile strength of 47,000 psi; yield strength of 38,000 psi and an elongation of four percent. Permanent molds: tensile strength of 53,000 psi; yield strength of 43,000 psi and an elongation of seven percent. Tens-50 may be cast in both sand and permanent molds without the need for special tooling or extra procedures. Because of its high fluidity, wall thicknesses of 1/8 inch may be cast in sand and 5/32 inch in permanent molds. The principle alloying elements are silicon and magnesium with small additions of beryllium. *Reynolds Metals Co.*

274



## INSULATED MOTORS

275

... new system provides added protection

A new insulation system has been especially developed for encapsulated formed coils used in large AC motors ranging in sizes from 200 to 2,000 HP. The new insulation system provides added protection to windings against moisture, chemicals, oils and abrasive contaminants, allowing increased life for open motors used in unfavorable environmental conditions. The Capsulex system features rectangular copper conductors covered with a basic insulation of fused Dacron and fibers, which are formed and impregnated with a high-dielectric, insulating varnish that penetrates the spaces between the conductors and augments the basic insulation on the copper. The formed coils are encapsulated with silicone elastomer and armoured with a polyester web tape which is silicone impregnated. The coils are then vulcanized, providing a completely sealed protective sheath. *The Louis Allis Co.*

## PHOTOELECTRIC SAFETY UNIT

276

... uses modulated light



Using a modulated (pulsating) light beam on a new photoelectric safety device has increased machine operator safety and at the same time eliminated the possibility that outside light sources will affect the operation of the

unit. Photoelectric safety devices are used on presses, brakes and other equipment where only limited access to the danger area is possible and entry can be made only through the light beam. When the beam is blocked, machine operation is halted. The modulating feature of the beam is produced by a special rotating disc in the beam projector. The receiver is then tuned to the modulated frequency and is thus not influenced by other light sources. The new unit is also designed so that its power failure will also automatically stop the machine. *Clark Controller Co.*

## LIFT TRUCK

277

... new 23 ton unit has pneumatic tires

A maneuverable pneumatic tire lift truck, capable of handling loads in the 46,000 pound capacity range, has been developed. Called the Challenger 460A, it incorporates many of the features found in the 360-400 series. However, the new truck is not merely a beefed up version of a smaller unit. Wheel base has been lengthened, and a completely new hydraulic system has been designed into the unit to handle the increased lifting capacity. Rated at 46,000 pounds at a 48" load center, the unit is particularly suitable in the steel, pipe, concrete, and logging industries. Two features designed to keep the unit operating with minimum trouble are a full time, full flow oil filter, and a dry type air cleaner with pre-cleaner. The full flow filter is located at the return tube in the hydraulic tank where all oil must pass through. Maximum filtration is assured even in applications where all air pollution is high. *Hyster Co.*



Replace broken glass in half the time!

## NEW Milwaukee 1/2" ELECTRIC HAMMER



Cat. No. 5320

This new hammer removes steel sash putty in seconds. No more tedious hand chipping. So lightweight (only 4 lbs.) ... so easy to handle ... cuts way down on operator fatigue. Increases worker's efficiency ... speeds up the job by more than 50% ... lowers maintenance costs.

Instantly adjustable blow control guarantees proper impact without danger of cracking adjacent windows. Hammer action stops when pressure is released ... assuring long tool life. It's also ideal for tuck pointing masonry ... and with Rawl drills for mounting pipe straps, installing duct work, anchoring switch boxes and many other applications. See your MILWAUKEE Distributor or write for bulletin EH9.

Visit our Booth 509

Western Plant Maintenance and Engineering Show July 18-20, Pan-Pacific Auditorium, Los Angeles

**\$125.00**

Complete in steel carrying case with assorted drills, chucks, chisels, and accessories.

Find your MILWAUKEE Distributor in The Yellow Pages

**MILWAUKEE ELECTRIC TOOL CORPORATION**

5350 WEST STATE STREET • MILWAUKEE 8, WISCONSIN

A1-132

... for more details, circle No. 73 on Reader Service Postcard

93

## For All Rotating Equipment the ROTARY UNION®



This revolving joint is remarkably flexible. It can be installed at any angle. It automatically adjusts to stress and strain—to machine wear, and to variations in line pressure. The Rotary Union maintains a tight seal for gases and liquids from dead stops to high speeds.

There is a Rotary Union for every heating or cooling application—in pipe sizes from 1/4" through 5". Write for Catalog 700.

®Trade Name—Patented

"WHERE Good Connections COUNT"  
PERFECTING SERVICE COMPANY, 332 Atandu Ave., Charlotte, N.C.  
Baltimore—Buffalo—Camden, N.J.—Chicago—Cleveland—Los Angeles  
New York—Providence—Montreal—Toronto

... for more details, circle No. 74 on Reader Service Postcard



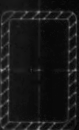
ROUND



SQUARE



RECTANGULAR



## Structural Steel Tubing

... fast, reliable service

### advantages

more strength at lower cost—Rigid box structures have demonstrated their economy in many applications. Weight and costs are less than many other common structural steels. Smooth exterior surfaces—Provide handsome exposed structures without excessive expense required in costly false work.

### size range

from warehouse stocks—

Rounds from 3/4" diameter x .028 wall through 6" OD x .180" wall.

Squares from 3/8" x 3/8" outside x .035" wall through 6" x 6" outside x .250" wall.

Rectangulars from 1" x 1/2" outside x .065" wall through 8" x 4" x .250" wall.

mill shipments—through 48" girth directly from one of the producing mills direct to the job site.

**Foucar, Ray & Simon**

75 Townsend Street • San Francisco 7, Calif.

Telephone: EXbrook 2-5975

... for more details, circle No. 75 on Reader Service Postcard

## FLOOR MAT

... uses special link for stability



A new link for floor mats has been developed that permits an interlocking fabrication, providing a stability of dimension in all directions. The link, made of vinyl plastic, is molded, rather than extruded, so as to result in extreme uniformity. Links are woven on a non-rust steel network, which is secured to a two inch plastic border reinforced by steel rods at the ends. The links are durable, odorless, grease-resistant and not subject to checking or cracking. Being non-porous, dirt cannot be imbedded. The mat, known as the Sentinel entrance mat, presents a non-slip surface for sure footing under all conditions and hugs the floor to prevent skidding. It is quickly cleaned and rolls for ease of handling. Available in any combination of 10 colors, it can be personalized by incorporating the name trade-mark or emblem in the design. *American Mat Corp.*

## CONVEYOR CHAIN

... with Delrin-bushed rollers

After two years of continuous testing and development with plastic bushings in a leading midwest food processing plant, steel conveyor chains with Delrin-bushed rollers have been made available. The added design feature will aid the Chabelco line in far outperforming the plain all-steel chains that are already increasing wear life over cast chains at a 2 to 1 ratio. Delrin is highly resistant to moisture and retains its strength and size when wet. It resists corrosion better than stainless steel and has a low co-efficient of friction. Its use in the new rollers, together with non-corrosive stainless steel bushings, offers the ideal combination for maximum service life. Delrin-bushed rollers need little or no lubrication. In addition, they operate quietly and can be continuously cleaned with water at temperatures up to 180 degrees Fahrenheit. They can also be steam cleaned when necessary. *Chain Belt Co.*

## SPIRAL WRAP HOSE

... for large diameter, high pressure lines



Developed especially to meet the demand for large diameter, high pressure hose lines, this spiral wrap hose is suitable for use in hydraulic systems where 1/4-in. to 2-in. hose sizes are required with working pressures up to 3000 psi. The hose has a synthetic inner tube with alternating layers of spiral wire wrapping and synthetic rubber. Special segmented fittings developed for use with the hose may be assembled easily and quickly with simple hand tools. The hose need not be skived to attach fittings. The segmented fittings are leakproof and blowoff proof; yet they are completely detachable and reusable. *Aeroquip Corp.*

278

279

281

## READOUT FOR ANNUNCIATORS

... provides up to 60 messages

A new display for annunciators that provides up to 60 messages is announced. Called the Series 9000H Display, it is designed for those annunciator applications where simultaneous data is required in a fast, easy-to-read method. It has a capacity of 60 messages which may be displayed individually or in combination, or a 50 message capacity with red or green color backgrounds available. This display device operates on a rear-projection principle and provides 60 miniature lenses or "positions" which the user utilizes for his data or color backgrounds. Examples of the data which may be chosen by the user include temperature, stop-go, test, numbers, or any characters of varying width, height, or color. *Industrial Electronic Engineers, Inc.*

## TRANSFORMERS

... made compact for close quarters

Compact network transformers, designed to fit into close quarters, are now offered in 300 through 2500 kva ratings. Space-saving features of these transformers permit upgrading existing secondary network systems by installing higher transformer ratings in present vaults, and also permits lower construction costs on new systems. Transformer enclosures have corrugated walls to provide smooth radiating surfaces free from dirt-catching corners, permitting easier cleaning and painting when required. An anti-corrosive finish and a special asphalt base undercoating provide years of protection even under adverse conditions in underground vaults. *Wagner Electric Corp.*

## SLIP CASTING

... new powder metallurgy technique

Slip casting, a new powder metallurgy technique, makes it possible to economically produce refractory metal parts on a short run basis. This method can accurately produce intricate shapes involving re-entrant angles, inside and outside threads, as well as solid and hollow parts cored in any direction. Such metals as tungsten, molybdenum, tantalum, chromium, columbium, and alloys of these base metals can be formed by the technique. A variety of refractory metal parts have already been produced, such as tungsten nozzles weighing over 100 pounds, 12 inch crucibles, and small complex castings with walls as thin as 1/16 of an inch. *ESCO Corp.*

282

283

284

## Babbitt Adjustable SPROCKET RIM with Chain Guide CHANGES THAT DANGER ZONE TO A SAFETY ZONE



... saves you money

### ON EVERY VALVE

Every minute saved is money in your pocket. Cut out the waste of time, labor, floor space due to hard-to-reach valves. At the same time, convert Danger Zones to Safety Zones. Equip every overhead valve in your plant with Babbitt Adjustable Sprocket Rims with Chain Guides for day to day economy.

- They simplify pipe layout.
- They fit any size valve wheel.
- They are easy to install and operate.
- They operate any valve from the floor.
- They save time and money.
- The first cost is the only cost (no maintenance).
- They are packed completely assembled (one to a carton), with easy-to-follow instructions.
- A hot-galvanized rust proof chain is available for all sizes.

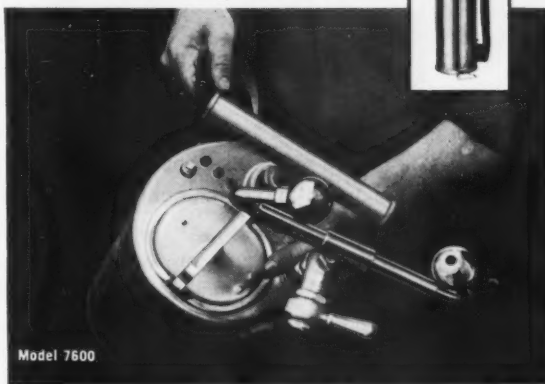
Babbitt Adjustable Sprocket Rims with Chain Guide are carried in stock by most mill supply houses. Just phone your mill supply salesman, or contact us direct.

## Babbitt STEAM SPECIALTY CO.

13 BABBITT SQUARE, NEW BEDFORD, MASS., U.S.A.

... for more details, circle No. 77 on Reader Service Postcard

## portable SAFETY ... on tap!



Model 7600

Trip the valve... handle-pumped pressure instantly sends cleansing, diluting water streams into suddenly contaminated eyes. This fully portable, on-the-job first aid bridges the gap until medical help arrives. Find out about all of Haws positive action emergency equipment. Write for our new catalog—today!

SINCE 1909

**HAWS**

PORTABLE EYE-WASH

a product of

**HAWS DRINKING FAUCET COMPANY**

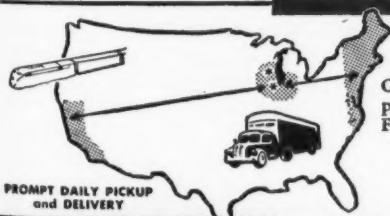
1443 Fourth Street • Berkeley 10, Calif.

EXPORT DEPT.: 19 Columbus Avenue, San Francisco 11, California, U.S.A.

... for more details, circle No. 78 on Reader Service Postcard

**Assured SPEED—SAFETY**  
when you rely on

**LIFSCHULTZ**



Over 62 years of dependable ON-TIME Freight Forwarding Service.  
We welcome your inquiry.

PROMPT DAILY PICKUP and DELIVERY

**LIFSCHULTZ  
FAST FREIGHT**

**FASTEST TO  
BOTH COASTS**

... for more details, circle No. 76 on Reader Service Postcard



**We challenge anyone  
to beat this starter!**



When you speak this plainly, it takes a top quality product to back up your words. We are certain of that backing in the Clark Type CM Manual Starter, the starter that challenges comparison with any other manual starter available today.

It's built to standards usually found only in magnetic starters. Combines not just a few, but ALL modern features...simplest to install, easiest to maintain, smoothest and most positive in its action...assures maximum protection and safety, greatest dependability and longest life.

Here's the manual starter that will do a better job on your very next installation. Please accept our challenge. Ask for the Clark Type CM Manual Starter at your wholesaler's. Give it a try. We believe that its performance will convince you.

61M51

**JUST A FEW OF MANY  
OUTSTANDING CLARK FEATURES:**

- Smooth, positive, tease-free, snap action operation
- Large double-break, weld-resistant contacts, easily inspected and replaced
- Built-in arc barriers
- Three separate safe-locking features
- Recessed operating handle
- Optional third line overload
- Straight-through wiring, plenty of knockouts
- Trip-free operation
- Exclusive terminal design, assuring tight connections, even for two wires of unequal size
- Dual operating springs, either one strong enough to operate starter

**THE CLARK CONTROLLER COMPANY**

MAIN PLANT: CLEVELAND, IO • WESTERN PLANT: LOS ANGELES, 58  
IN CANADA: CANADIAN CONTROLLERS, LIMITED, TORONTO, ONT.



PLANTS — PRODUCTION — DISTRIBUTION — PERSONNEL

## CF&I Okays \$15,000,000 Steel Plant Expansion

PUEBLO, COLO. — Colorado Fuel & Iron Corp. has approved a \$15,000,000 expansion and modernization program for its steel plant here, A. F. Franz, president, told stockholders at CF&I's annual meeting in Denver last month.

Modernization and expansion of the Pueblo plant's 25-inch mill would provide for the rolling of wide flange beams in a range suited to the firm's Western market.

New gas cleaning equipment for four blast furnaces will be provided for at Pueblo in the new program.

Approval was given for construction of a new limeburning plant and stockpiling facilities, to be used in the operation of the new oxygen steel-making plant now nearing completion.

## Marshall Acquires Aerolab And Western Scientific

SAN MARINO, CALIF. — The Marshall Industries, here, has announced the recent acquisition of Western Scientific Instrument Co., Inc., of Redwood City, Calif. and the Aerolab Development Co. of Pasadena, Calif., a subsidiary of Ryan Aeronautical Co.

Gordon S. Marshall, president of Marshall Industries, said Western Scientific, an instrument calibration firm, was purchased for an undisclosed amount of Marshall common stock. Aerolab was purchased for an undisclosed amount of cash.

Western Scientific will operate as a wholly owned subsidiary with no change in management while Aerolab will function as an autonomous subsidiary and will continue to be directed by Dr. Donald P. Burcham, president.

Aerolab, designers and manufacturers in the aerospace industry, has 30,000 sq. ft. of facilities at Pasadena.

## Motorola Semiconductor Opens Phoenix Addition



Dr. Lloyd V. Berkner, president of Institute of Radio Engineers, cuts the ribbon marking the opening of a new 315,000 sq. ft. addition to the Motorola Semiconductor Products Div. manufacturing facility in Phoenix. Dr. C. L. Hogan (left), Motorola vice president and general manager of the Semiconductor Div., and Dr. D. E. Noble, executive vice president of Motorola, Inc., look on.

PHOENIX — A new 315,000 sq. ft. addition to Motorola's Semiconductor Products Div. manufacturing facility, which more than doubles the size of the present plant, was officially opened here recently.

The new structure represents an investment of approximately \$4,800,000, to which will be added an estimated \$2,000,000 worth of manufacturing and research equipment. The addition increases the floor space of the plant to a total of 575,000 sq. ft. at this one location.

A separate three-story wing of some 24,000 ft. will be devoted to new executive offices and staff functions, with the remainder being slated for manufacturing purposes. A substantial number of additional employees are expected to be added to staff the new facility over the next several years.

## Spreckels Sugar to Build \$16,000,000 Mendota Plant

FRESNO, CALIF. — The Spreckels Sugar Co. plans to build a \$16,000,000 sugar beet plant on a 1600-acre site owned by the company near Mendota, Calif. The plant will occupy about 40 acres.

The plant is to be in full operation by the summer of 1963, according to Vice-President Guy Manuel of the sugar company, and employ about 250 to 350 persons on a permanent year-round basis.

Fresno County-City Chamber of Commerce Industrial Manager Floyd I. Klein said the company's plans indicate the Mendota factory will slice some 4,000 tons of sugar beets daily. Three other plants operated by Spreckels in California are at Spreckels, near Salinas, capacity 7,000 tons; Woodland, capacity 3,700 tons; and Manteca, 2,500 tons.

## 19 Manufacturing Firms Plan Bay Area Plants

SAN FRANCISCO — Nineteen manufacturing firms in the South, Midwest and East are planning new plants in the San Francisco Bay Region and will eventually spend about \$130,000,000 here, Lewis M. Holland, industrial manager of the San Francisco Chamber of Commerce reported last month at the conclusion of a prospecting tour.

Holland, who is immediate past president of the American Industrial Development Council, attended the annual meeting of that group in Dallas and went on to call on 40 firms in Texas, Louisiana, Pennsylvania, New York, New Jersey, Ohio, Michigan and Illinois.

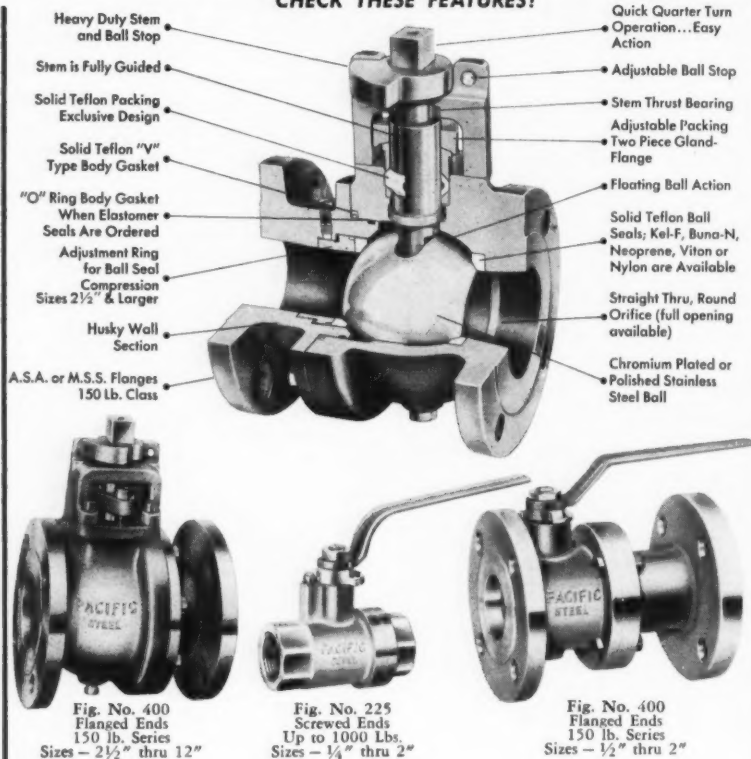
The corporations had contacted the Chamber during the past year regarding Bay Region location.

Principal fields of the new firms are light metals, glass products, electronics, chemicals and pharmaceuticals.

# BALL VALVES

## PACIFIC OFFERS A COMPLETE LINE!

CHECK THESE FEATURES!



Pacific Ball Valves are designed with but one purpose...to outperform all other ball valves! The criterion for each design decision was performance. Pacific's twenty-five years' experience manufacturing and rebuilding valves of all types, plus leadership in the number of types of valves accepted for the military nuclear and missile programs is your assurance of Pacific's valve "Know-How."

Pacific offers a wide range of standard Ball Valve materials: Cast Iron; Ductile Iron; Carbon Steel; CF8, CF8M & Alloy 20 Stainless Steels; and Monel. The standard ball seal materials are: Buna-N, Neoprene, Viton, Teflon, Kel-F and Nylon.

Pacific offers a complete line of valve actuators including its exclusive "PneuRotor"®, a pneumatic rotary operator mounted directly on the valve.

Pacific offers a specially designed line of "Fire-Safe" Ball Valves for applications where the maximum protection is necessary in the event of fire.

Pacific offers a line of Hi-Pressure Ball Valves, 1/8" through 1", for gas or air pressures up to 6000 p.s.i.

Send today for a Pacific Valves representative and/or Ball Valve Catalog for complete data and specifications.

PACIFIC VALVES, INC., 3201 Walnut Avenue, Long Beach 7, Calif.

Gentlemen: Please have a representative call upon me with your new ball valve catalog.

Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Position \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

NEW  
 64 PAGE  
 BALL  
 VALVE  
 CATALOG



... for more details, circle No. 81 on Reader Service Postcard

## Beloit Tool Acquires Arizona Tool Company

SCOTTSDALE, ARIZ. — The Walter T. Cole Tool Co., here, has been acquired by the Beloit Tool Corp. of Beloit, Wisc., and will be operated as a wholly owned subsidiary corporation.

Both companies manufacture taps and other cutting tools. The Walter T. Cole Tool Co. manufactures solid carbide tools designed for use in highly abrasive and other special materials. Beloit Tool makes high speed steel special taps and special thread gages.

According to K. Y. Taylor, president of both companies, "We have immediate plans for expansion of all facilities of the Scottsdale plant. We feel that these carbide products are the tools of the future since they provide the only effective means of machining space age materials."

Carbide taps are used in high temperature ceramics, titanium, beryllium copper, powdered metals, plastics, laminated materials, teflon, and many other exotic metals.

The company will continue under present management according to Taylor. Walter T. Cole, founder of the firm died in 1959.

## Oregon Nickel Company Enters Commercial Field

RIDDLE, ORE. — The Hanna Mining Co. has entered a major new field, the commercial production and marketing of nickel, the company announced last month.

The firm has completed acquisition of the smelter that processes ore from the nation's only large nickel deposit and has begun marketing high grade ferro-nickel for use in the production of stainless and other alloy steels.

Hanna Mining has operated the plant here since it was opened in 1955 through a subsidiary, the Hanna Nickel Smelting Co. It has produced more than 100 million pounds of nickel to date, all of which has been for the government to help build its defense materials inventory of the strategic material.

W. A. Marting, president, said that the company's experience has shown it can produce a nickel of dependable high quality at a competitive price. He said the firm has sales agreements with major alloy steel producers in the country.

## American Orbitronics in Production at Hawthorne

HAWTHORNE, CALIF. — American Orbitronics Corp., manufacturer of missile components, has begun operations at its 30,000-sq.-ft. factory here, according to *Richard Candelaria*, president.

Among American Orbitronics' products, Candelaria noted, are turbine rotary wheels, inducers, rotary pumps, nozzles and stators fabricated of exotic metals. The components are used in high-speed pumps within several types of missiles.

He also announced that the firm is producing jetevators, nozzles and other parts for engines using solid propellants, as well as gimbel housings for star tracking platforms used in inertial guidance systems for rockets and other purposes.

At present American Orbitronics is manufacturing components for the Titan, Polaris and Saturn missiles, all products of Aerojet General Corp. *Joseph G. Rosales* is vice president of production.

The new organization has executive offices in Washington, D. C. Its manufacturing facility is located here at 235 No. Daphne Ave.

## Ken-Way Plastics Firm Sold to Texas Company

PHOENIX—*Southwestern Plastic Co.* of Mineral Wells, Texas, has announced the purchase of all common stock of Ken-Way Plastic Products Corp. here.

*J. F. Bailey*, Southwestern's executive vice president, stated the purchase was made to extend the distribution and manufacturing facilities into new areas for the parent company. "Ken-Way has enjoyed a favorable growth in limited product sales. We intend to expand the product offerings of the newly acquired company in the Arizona-California area," Bailey said.

The name will be changed to Southwestern Plastic Pipe Co. of Arizona and officers of the Texas firm will assume similar positions in the new company, *M. B. Crawford, Jr.*, who has been associated with Ken-Way since 1958 in its management and as part-owner, will continue in charge as active manager of the Phoenix corporation. In addition he will serve as manager, Western division of the parent company.



## Here's how **Snap-on** provides specialized hand tool service across the board for industry

**Production**... *Snap-on* offers a complete range of wrenches, sockets and specialized tools for product assembly.

**Original Equipment**... *Snap-on* makes up custom-built tool kits to be included with new products shipped from the factory.

**Maintenance**... *Snap-on* provides maintenance tools for servicing anything from plant facilities and machines to every type of vehicle.

**Field Service**... *Snap-on* assembles special field-service tool kits for repairing everything from diesel engines to business machines and appliances.

### Plus **Snap-on** Personal Service

*Snap-on* Sales Engineers work closely with industry to cut costs, keep production on the move. Here are a few examples:

Now revamping one company's entire tool crib setup (year-long project).

Put *Snap-on* engineer right on electronic assembly line to design special pliers.

Spent weeks on excavator assembly line to provide special tool kit.

Same as above on diesel engine assembly line.

Continually providing special long-life impact sockets on dozens of assembly lines.

Whatever your tool problem, *Snap-on* can render a specialized service. Branch offices and warehouses are located in key industrial centers throughout the U.S. and Canada. Write us or call your nearby *Snap-on* representative.

## FOR ALL INDUSTRY **SNAP-ON TOOLS**

8032F 28th AVENUE • KENOSHA, WISCONSIN

• LOS ANGELES (DU 8-3445) • OAKLAND (HI 4-5986) • SEATTLE (SU 2-2192)  
• SALT LAKE CITY (HU 4-5854) • PHOENIX (BR 5-2489) • HONOLULU (86-6665)  
• BUTTE (2-8762)

... for more details, circle No. 82 on Reader Service Postcard



# NEW WEST COAST FACILITY

## means factory-fast service on HIGH QUALITY CHAIN



CM's New Factory Branch: 955 Indiana St., San Francisco 7

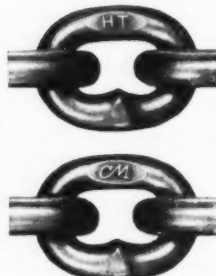
Famous Herc-Alloy sling chains are now produced on the Pacific Coast and delivered with certificate of test, serial numbered tag and guarantee. Complete sling chain repair service is a specialty of this factory unit.

**HERC-ALLOY**—the original alloy steel sling chain is still unmatched for quality. It is lighter without sacrificing strength...it is longer wearing and has high resistance to impact loading. Preferred by leading safety engineers for over 30 years.



**HAMMERLOK**—the dependable "do-it-yourself" coupling link for making field assemblies...simple...safe.

This new facility carries a complete stock of welded chain and attachments including Proof Coil, BBB and High Test...all bearing our exclusive embossed symbols indicating Make and Grade. Binding chains to meet Washington, Oregon and California state requirements are stocked.



Available through leading distributors

**COLUMBUS MCKINNON CHAIN DIVISION**  
COLUMBUS MCKINNON CORPORATION  
TONAWANDA, NEW YORK

West Coast: 955 Indiana St., San Francisco 7

Phone: ATwater 5-0350

Warehouses: Los Angeles, Portland, Salt Lake City

... for more details, circle No. 83 on Reader Service Postcard

### National Cornice Works Acquired by H. K. Porter

LOS ANGELES — The H. K. Porter Co. of Pittsburgh, Pa., has announced the purchase of the National Cornice Works, Inc., here. The acquired firm is primarily a manufacturer of fans and blowers used for commercial and industrial ventilation, and marketed under the "Master Fan" trademark.

The acquisition gives Porter its fifth West Coast manufacturing operation. Others include a San Carlos, Calif., transformer plant, a Monrovia, Calif., steel tape and rule plant, a Pittsburgh, Calif., industrial rubber products plant, and a Seattle, Wash., plant making industrial cutting tools. Pittsburgh-based Porter produces industrial and consumer products ranging from steel, refractories, and special alloys to paints, tools and automobile parts.

National Cornice Works, nearly half a century old, will be operated as a wholly-owned subsidiary of Porter and its engineering and sales forces will work closely with those of Peerless Electric Div. of Porter at Warren, Ohio.

National Cornice, one of the largest producers of industrial size fans and blowers on the West Coast, in the past has marketed its products chiefly in Southern California. As a Porter subsidiary, customers throughout the Far West will be served, as is Peerless Electric, through the 10 offices of the Norman S. Wright Co., San Francisco.

Porter is currently studying plans for additional machinery and equipment that would increase fan and blower production capacity at National Cornice Works by as much as 50 percent.

The new subsidiary is also a custom metal fabricator and a producer of several types of school, institutional, and restaurant hot food serving equipment.

### North Star Erecting \$150,000 Warehouse

ANCHORAGE — Construction of a 100 by 180-ft. steel warehouse by North Star Terminal and Stevedore Co. at 220 Post Rd. has been announced.

A company spokesman said North Star intends to transfer its Tatco bonded warehouse operations from the present site in the Alaska Railroad Terminal area to the new building this month.



## Republic Supply Opens No. California Facility

SAN LEANDRO, CALIF.—R. M. Chewning, vice president and manager of sales for Republic Supply Co. of California, has announced the opening of a new Specialty Metals Division, here, for the benefit of industries in the San Francisco Bay area.



Donald E. Becker

Donald E. Becker, has been appointed manager of the new San Leandro facility which is stocking aluminum, stainless steel, alloy steel and cold finished bars.

Becker, formerly manager of steel sales for Republic Supply Co.'s southern division, has more than 20 years of experience in the sales of steel products.

Republic Supply is a Western distributor of metals with headquarters at 2600 Eastland Ave., Los Angeles.

## New Pulp, Paper Mill Dedicated at Coos Bay

COOS BAY, ORE. — The Menasha Wooden Ware Corp. began production last month in a new \$5,000,000 mill here which industrial and civic leaders described as marking the opening of a new era for the forest-products economy of the timber-rich southwest Oregon coast port.

Menasha built the mill and Pacific Power & Light Co.'s engineers developed a water supply to make possible the expansion of the forest economy.

Ernest C. Manders, who will manage the mill for Menasha, said the annual payroll will be about \$400,000. The company will purchase locally an estimated 40,000 cords of alder a year. About a fourth of the wood fiber raw material will be Douglas chips.

Mowry Smith, Jr., a Menasha vice president, said the mill will produce the tough-fibered paper used for the corrugated middle layer in the paper-board sandwich used to make shipping containers. Menasha makes such cartons in its Anaheim, Calif. plant.

About 1,500,000 gallons of water daily for the pulp process is drawn from a large sand dune area between the Pacific ocean and the north shore of the bay where the block-long aluminum-sided mill is located.

## Choice of the wise buyer who compares...

# CM HOISTS

**CM METEOR ELECTRIC WIRE ROPE HOIST** ½ to 5 ton capacities—Compact, enclosed design. Low headroom. Continuous duty motor with thermal overload protection for heavy duty service. Precision bearings and helical gears for long life. Only 110 volts at push button control. Hook suspension; plain, geared or motor driven trolley.



**CM LODESTAR ELECTRIC CHAIN HOIST**—½ to 2 ton capacities—First truly heavy duty version of small electric hoist. ¼ ton model weighs only 51 lbs. Heavy duty self-adjusting brake, plus exclusive regenerative electrical braking. Upper-lower safety limit switches. CM-Alloy load chain. Single and three phase.

### HAND OR ELECTRIC CHAIN OR WIRE ROPE

CM makes them all! So you can choose a hoist that's perfectly suited to your specific needs in a compact, rugged and safe CM design.

### CM TROLLEYS AND CRANES



**CM CYCLONE Hand Chain Hoist**—¼ to 10 ton capacities—Easy to carry. One ton model weighs only 36 pounds. Made of tough aluminum alloy. CM-Alloy load chain. High efficiency. Lifetime lubrication.



**CM PULLER—"The One Man Gang"**—¾ to 6 ton capacities—Lifts or pulls at any angle. Lever handle operation. Automatic load brake holds at any point. ¾ ton model weighs only 13 pounds and fits in a tool box. CM-Alloy load chain.



● **FOR OVER 75 YEARS**, Chisholm-Moore has offered hoist buyers the newest and most efficient designs, the most rugged construction, and the greatest number of valuable operating and safety features. CM hoists operate with a very minimum of maintenance. They give years of satisfying service.

Request catalog and name of local stocking distributor.



## CHISHOLM-MOORE HOIST DIVISION COLUMBUS McKINNON CORPORATION

TONAWANDA, NEW YORK

REGIONAL OFFICES: NEW YORK, CHICAGO, CLEVELAND

In Canada: COLUMBUS McKINNON LIMITED, ST. CATHARINES, ONTARIO

... for more details, circle No. 84 on Reader Service Postcard

## Nuclear Corp. Acquires U. S. Semiconductor

PHOENIX — The Nuclear Corp. of America has acquired the assets of U. S. Semiconductor Products, Inc., producer of solid state devices, instruments and controls.

David A. Thomas, president of Nuclear, said the purchase price includes 600,000 shares of Nuclear common stock plus an undisclosed amount of cash.

Prior to the purchase U. S. Semiconductor was a subsidiary of United Industrial Corp of New York City which owned 90 percent of the Phoenix company's outstanding stock.

Thomas said U. S. Semiconductor will be expanded and continue research and development in solid state electronics, as well as the manufacture of solid state products. All present activities will be continued, Thomas said.

U. S. Semiconductor occupies 55,000 sq. ft. of plant space and has some 200 employees. Nuclear Corp., with plants at Danville, N.J., and Burbank, Calif., produces nuclear instruments and controls, electronic components and power tubes.

## Palo Alto Site for New Diotran Pacific Plant

PALO ALTO, CALIF. — Diotran Pacific, here, manufacturer of semiconductor production equipment has announced the purchase of a building site in Palo Alto where their new \$250,000 plant, laboratory and office facilities will be constructed.

The proposed two story structure, with 20,000-sq. ft. of planned working space, has been designed by *Kenneth P. Elvin*, Palo Alto architect. Construction is underway with completion scheduled late in the year.

## City of Industry Site for Libbey Glass Plant

LOS ANGELES — The Libbey Glass Div. of Owens-Illinois Glass Co. has purchased an 88-acre site in the City of Industry, here, to build a 317,801 sq. ft. facility.

The plant, to be located at Anaheim-Spadra Rd. and the Southern Pacific Railway tracks, is scheduled to be in production by June, 1962. *Carl R. Megowen*, president, said the facility will produce the company's complete line of tableware for home and institutional use.

## MetroLronics Offering Courses in Metrology

BURBANK, CALIF. — A new concept in technical training for personnel responsible for reliability, quality assurance and quality control has been advanced by MetroLronics Institute of Metrology, a newly formed division of MetroLronics, Inc., here., according to *Thomas G. Utley*, general manager.

Utley states the new Institute of Metrology is established to introduce students to the modern requirements for precision measurement demanded by space age technology. Comprehensive one-week courses in linear metrology are being conducted using environmentally controlled laboratory under the direction of *John A. Harrington*, author and lecturer in the field of metrology.

In addition to using many common laboratory instruments, the students are introduced to a German made Zeiss Interferometer and link fringe account micrometer capable of measuring to one-tenth of a millionth of an inch.

MetroLronics is located at 2201 N. Hollywood Way, Burbank.

# PLASTIC HEADQUARTERS! CADILLAC Sells CONVENIENCE! IMMEDIATE DELIVERY! The Largest Stock on the West Coast! 3 LOCATIONS TO SERVICE YOU!



South San Francisco

SHEETS

RODS

TUBES



Los Angeles

Oakland

Phone DU 5-3001  
Los Angeles

TE-6-0474  
Oakland

PL 6-7740  
So. San Francisco



Nylon	Vynlite
Teflon	Acetate
Plexiglas	Mylar
Fiberglass	Resins
Polyethylene	Polystyrene
Cements	Butyrate
Styrene	Delrin

**CADILLAC PLASTIC COMPANY of CALIFORNIA**  
2305 Beverly Blvd. Los Angeles, Calif.

... for more details, circle No. 85 on Reader Service Postcard

## Space Age Travel Lift Totes 75 Tons at 1 MPH



SAN JOSE, CALIF. — Said to be the largest lift on rubber tires in existence, this unit is 57-feet high, 50-feet wide and weighs 102,900 pounds. The lift was manufactured by Travel-lift Div. of Drott Mfg. Corp., Sturgeon Bay, Wis.

To be utilized in lifting and transporting very large rocket motor segments, it can carry as much as 75 tons and move this weight over prepared roads at about one mile per hour. Located at United Technology Corp.'s Development and Test Center in the Diablo Mountains, near San Jose, Calif., it was shown to the public for the first time during ceremonies dedicating the company's two new industrial complexes.

United Technology Corp. is a subsidiary of United Aircraft Corp. and is carrying out research and development in the fields of rockets, solid and liquid propellants and advanced propulsion systems.

## Larkin Specialty Mfg. Purchases Two Firms

SAN FRANCISCO — Larkin Specialty Mfg. Co., makers of metal stampings and wire forms, has acquired Bankers Utilities Co. and the Steel Products Corp. of California, it was announced recently by L. E. Dieguez, Larkin general manager.

Dieguez said purchase of the two companies represents the first step in a major expansion program by Larkin. Consolidation of the firms, he explained, establishes a centralized control of the three operations and facilitates a greater utilization of equipment and a greater diversification of production. All three companies are located in South San Francisco.

## Radar Relay Creates Electronic Division

SANTA MONICA, CALIF. — The board of directors of Radar Relay, Inc., has formed a new division, Ratronics, to handle the company's growing activity in the field of printed circuitry.

William C. Arrasmith, Radar Relay president, said that the new division would enable the firm to concentrate its printed circuit activities under one central management for more efficient operation.

The board named Kenneth Klier manager of the new division, which will make its headquarters here.

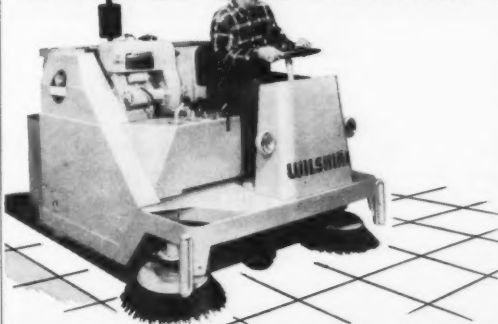
## Liberty Electronics in Third Major Expansion

INGLEWOOD, CALIF. — Irving Zeiger, president of Liberty Electronics Corp., has announced completion of the firm's third major expansion move in five years.

The new plant, located at 339 South Isis, here, was specifically designed for further staff increases, coupled with an extensive warehouse area comprising 20,000 sq. ft.

Liberty is a manufacturer and distributor of electronic components for the military and commercial aircraft and electronic industries.

# WILSHIRE



## CUT SWEEPING COSTS WITH THIS MAINTENANCE-FREE SWEEPER

engineered so the Maintenance Department  
can Add to the Net Profit of your company!

An 18 HP, 2-cylinder, 4-cycle gasoline engine powers the all-new 4400 sweeper. Two speed transmission. One foot pedal controls forward, reverse and hopper dump. Heavy duty drive chain runs in oil—permanently sealed. Self-adjusting idler pulleys. Operator controls pressure of full floating main broom and side brushes. Exclusive 12-bag filtering system. Covers a minimum of 120,000 sq. ft. per hour.



## TOUGH...POWERFUL...DEPENDABLE

Rough treatment and constant use won't hurt this solid steel "baby." The Wilshire 4400 is plenty rugged, yet simple to operate and fully maneuverable even in crowded areas. Insist on a competitive demonstration before you buy. For guaranteed machine amortization, specify the new Wilshire 4400—tops in power sweepers!

SEND FOR PROOF TODAY! →

# LINCOLN

LINCOLN Floor Machinery Co. and WILSHIRE Power Sweeper Co.

divisions of AMERICAN

LINCOLN CORPORATION

# NEW

## 4400

# WILSHIRE INDUSTRIAL POWER SWEEPER



- Variable Speeds
- Sweeps 68" path
- Holds ½ ton

WILSHIRE POWER SWEEPER CO.,  
Dept. WI-551, Toledo 2, Ohio

Please rush literature and specifications. ☐ We would also like to have a free demonstration.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

... for more details, circle No. 86 on Reader Service Postcard



## Roof Parking to Save Space at Telecomputing Plant



Inspecting an artist's conception of the complete Telecomputing Corp. industrial complex in Chatsworth, Calif., Edward K. Rice, president of N. Y. Lin and Associates, right, points out the recently completed first module to T. Y. Lin, left, chairman of the board of N. Y. Lin and Associates; Don Newton, director industrial engineering, Telecomputing Corp.; and Duke Atkinson, plant engineer, Telecomputing Corp.

CHATSWORTH, CALIF. — Marking the completion of the first module of an 18-building complex under construction on a 77-acre site here, the Telecomputing Corp. recently showed an inspection party of industrial realtors and newsmen the company's solution to the high cost of employee parking lots.

The solution of roof parking for plant personnel was provided by T. Y. Lin and Associates of Van Nuys, Calif., design engineers serving as consultants for the new industrial complex.

Edward Rice, president of T. Y. Lin and Associates, led the inspection party on a tour of the first module to be completed, a 120 x 240 sq. ft. structure that is the first of 18 one- and two-story units planned for the 500,000 sq. ft. facility.

Rice described the unit as the factory of the future, stressing its industrial construction firsts that include: the largest precast, prestressed concrete "tees" ever fabricated and erected in southern California; a new post-tensioning system that assures watertight decks; and an interior free of structural columns.

He said, "Prestressed concrete buildings of this type that provide roof parking will be a necessity in the future if southern California is to survive as an industrial center."

By parking 90 cars on the roof of each of the 18 Telecomputing Corp. modules, as well as in the basements

of four of the units, valuable land normally allocated for employee parking lots will be utilized as productive area, Rice pointed out. Placement of a parking lot on top of each building will permit the employment of approximately twice the number of workers who ordinarily could be accommodated on the site, he said. When fully completed, the Telecomputing facility can accommodate between 5,000 and 7,500 people.

## Buildings Block Plant Electronically Operated

HONOLULU—Henry J. Kaiser opened a new \$2,000,000 concrete products plant in Kamiloni Valley recently, which utilizes mostly Hawaii's own raw materials.

The plant can produce up to 40,000 lava-base building blocks a day. The combined facilities of the new concrete products plant and other Kaiser developments are designed for production of up to eight houses a day.

Interlocking concrete tiles produced at the plant are to be used not only for walls and flooring of homes, but also for roofs.

Methods, perfected by Kaiser and his research consultant, Gilbert E. Olson, include the use of the Rapidex system of pre-assembling the concrete tiles into long slabs. The Rapidex sections have tongue and groove edges and have precision ground faces to assure proper fit between panels.

## Industrial Air Products Acquires Alaskan Firms

ANCHORAGE — Purchase of a group of five Alaskan manufacturing and distributing firms in Anchorage and Fairbanks by Industrial Air Products Co. of Portland was announced recently by Gilbert Schnitzer, president of IAP.

Involved in the sale, for which no price was announced, are the facilities of Alaska's only industrial and medical gas manufacturing firm as well as companies distributing welding, cutting and allied equipment throughout the 49th State. The group was founded in 1940 by Walter Buckow of Anchorage. Buckow, who was president as well as major stockholder of the group, plans to retire following the sale.

The purchased companies are Alaska Chemical Corp. of Fairbanks; Anchorage Oxygen Co. of Anchorage; Alaska Fire Equipment Inc.; Alaska Welding Supplies Inc.; and Alaska Hospital and Safety Supply. The latter three are all located in both cities.

"This purchase gives IAP a complete network of plants, dealers and installations throughout the Pacific Northwest, Northern California, Montana and now Alaska, which has been our long-term goal," Schnitzer stated. "We can now offer complete services to contractors, manufacturers and other users anywhere in this vast area."

Founded in Portland in 1940, where main plant and offices are located, IAP, with the Alaska additions, is now operating nine manufacturing plants employing 250 people and distributes through more than 300 dealers and warehouses in six states. Other IAP plants are located at Seattle, Spokane, Tacoma, Yakima, Kennewick and Medford.

IAP will now service southern Alaska from its Seattle plant and central and northern Alaska from Anchorage and Fairbanks, Schnitzer noted.

## Kubla Khan Foods to Build Process Plant

PORTLAND — Three acres of industrial property in east Milwaukie has been purchased by Kubla Khan Food Co. to be used as a site for the firm's new \$250,000 processing plant, according to Bob Wong, president.



## Soule' Steel Creates Five Product Divisions

SAN FRANCISCO — To provide more specialized service for its related products, the Soule' Steel Co. has announced through its president *Edward Lee Soule', Jr.*, the creation of five product sales divisions.

Soule' manufactures steel and aluminum building products, including reinforcing steel, windows, doors, curtain and window walls, steel structures and metal lath commodities. The company, which also produces Mosaica, a new architectural medium, distributes throughout the Western states and in several foreign countries.

The five new product sales divisions and respective general sales managers are: reinforcing products, *C. C. Carpenter*; steel structures, *S. W. Nightingale*; architectural aluminum products, *K. W. Archer*; commodity products, *H. Scott Anderson*; and Mosaica, *R. L. Swan*.

The new general sales managers were previously product managers for the company with the exception of *Archer*, who was formerly Seattle district sales manager for Soule'. *Roger Chung* has been newly appointed as assistant general sales manager of the steel structures division.

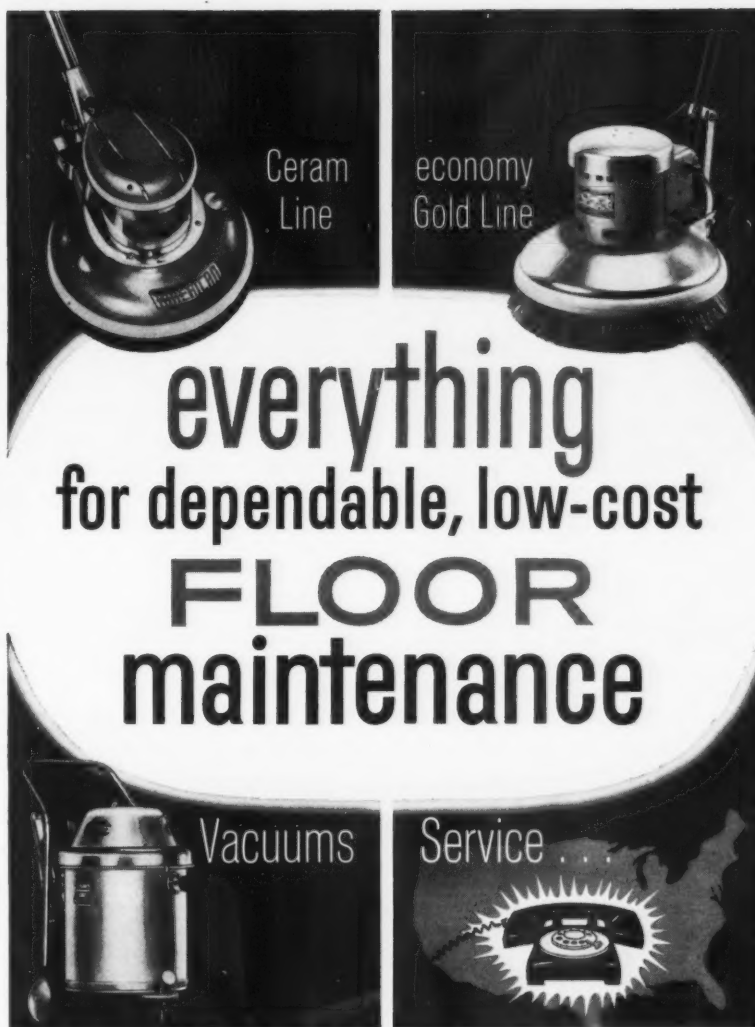
Soule' Steel's entire marketing operations will continue to be headed by *Stanley E. Soule'*, vice president of marketing. The new appointees will headquarter at the company's executive offices in San Francisco.

## Machinery Sales Co. to Represent Fenn Mfg. Co.

SAN MATEO, CALIF. — In a joint announcement by *A. T. Scattergood*, vice president sales for the Fenn Mfg. Co., Newington, Conn., and *H. T. Christanson*, president of Machinery Sales Co., the latter will add Northern California to the area in which it represents the Fenn line of metal forming equipment. The area now includes all of California, Nevada and Arizona.

Throughout the enlarged area Machinery Sales Co. will provide engineering service for Fenn rolling mills, swaging machines, wire flattening mills, wire shaping equipment, Turks heads, and draw benches.

The Northern California area will be serviced from Machinery Sales San Francisco branch, headed by *H. Bingham* and located at 2 South Bay Shore Blvd., San Mateo.



Ceram Line

economy Gold Line

# everything for dependable, low-cost FLOOR maintenance

Vacuums

Service

**SELECTION**—From a single source, the most complete line of floor maintenance machines ever available. Polishers, vacuums, sanders, tile removers, concrete grinders, wall washers, automatic floor scrubbers, power sweepers. All sizes.

**VERSATILITY**—American Floor machines are built to economically do several jobs. The new Ceram Line polishers (first to have permanent color), for example, do 7 different jobs—from polishing floors to removing wax buildups to shampoo-

ing rugs. Vacuums pick up wet and dry waste.

**PRICE**—Whatever your budget or floor care problem, there is an American Floor machine that will meet it best—and you can be sure of getting a rugged, well constructed machine!

**SERVICE**—Over 40 offices with factory trained personnel, a full line of equipment, supplies, parts and a service department to give you overnight service.

■ **Compare** and you will be convinced that American Floor gives you much more for your money

# AMERICAN®

FLOOR MACHINE CO.

Established 1903

division of AMERICAN-  
INCORPORATION

**Send the coupon today!**



... recognized authority in maintenance  
equipment and technical know-how

AMERICAN FLOOR MACHINE CO., Dept. 26, Toledo 3, Ohio  
Please send a copy of your full-line catalog.

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

... for more details, circle No. 87 on Reader Service Postcard

## American Can Opens Two New Plants In Oregon



Astoria leaders and American Can Co. officials operated switches on a master control panel to put Canco's new plant into production recently. Vice president E. T. Klassen, right, as he cued the official starting party to trigger production on equipment shown in background. Others participating, left to right, A. S. Bergstrom, plant manager; William Cunningham, Astoria city manager; A. T. Stramiello, president Astoria Chamber of Commerce; George Abrahamsen, chairman Astoria Sesquicentennial Committee; Dr. E. H. Harvey, Director Seafood Laboratory, Oregon State College; Dan P. Allen, representing Governor Hatfield and H. M. Steinbock, Astoria mayor.

SALEM, ORE. — Governor Mark Hatfield and civic and business leaders from the Columbia River area and from Southern Oregon's canning belt joined with officials of the American Can Co. recently in dedication ceremonies for two new Canco plants located in Astoria and Eugene.

Each of the new plants has an annual output capacity of 100,000,000 cans. The effect of the new additions is to double the can-making firm's output capacity in Oregon, raising it to 400,000,000 cans a year.

A present plant, located in Salem, is capable of turning out 200,000,000 cans annually.

Canco's Vice President W. F. May led dedication ceremonies in Eugene. Vice President E. T. Klassen headed a delegation of company officials on hand in Astoria.

May and Klassen disclosed in dedicatory remarks, that American Can research projects now under way foretell dramatic new container developments ahead. We are confident that techniques now under study will permit future can-making speeds of 1500 to 2000 cans per minute, as contrasted with present speeds of 500 to 600 cans per minute, the two officials said.

Another important development now under way is increased use of light-weight tinplate, which is less expensive to ship and therefore will aid canners in combating the problem of rising costs, they added.

## Dedicate Aerojet's New Astrionics Div. Facility

AZUSA, CALIF. — Allen F. Donovan, senior vice president-technical, Aero-space Corp. was the principal speaker at the recent dedication of Aerojet-General Corp.'s \$1,250,000 Astrionics Building, here.

Aerojet's Avionics Div. is producing the infrared subsystem for the Air Force MIDAS (Missile Defense Alarm System) satellites in this building. The new building, a 30,000-sq.-ft., one story, concrete block structure, was built for testing, manufacturing and assembling the sensitive infrared MIDAS components in a dust-free atmosphere.

To conduct extensive life tests on these subsystems, there is an imposing array of environmental chambers varying in size from small bell jars to large eight foot walk-in vacuum chambers capable of simulating space conditions up to 250 miles.

## New Roofing Plant for Fibreboard Paper Firm

SAN FRANCISCO — Fibreboard Paper Products Corp. has announced construction of a "modern, high speed" asphalt roofing plant near Martinez, Calif.

The plant, which will cost in excess of \$1,500,000, will replace the company's old, less efficient roofing plant at Emeryville, Calif. E. W. Carey, Fibreboard president, said. The new facility is expected to be in operation by the end of the year, producing a full line of asphalt shingles and roofing products.

Carey said the new plant will include one of the most efficient roofing machines in the industry. He said, "Construction of this advanced design plant is part of the company's program of leadership in the production of asphalt roofing throughout the West."

At the same time, the company announced that it has decided to discontinue its linoleum and felt base floor covering business.

"The decision to discontinue our floor covering business was reached after thorough analysis and study in the face of the unprofitable operations which this division has been experiencing," Carey said.

The decision does not affect production of the company's industrial floor covering, Mastipave, which will continue to be manufactured and marketed nationally.

## Pure Tungsten Casting Made by Oregon Firm

PORTLAND — Stephen M. Shelton, president of Oregon Metallurgical Corp., here, reports his company has pioneered in rare metals processing by casting 100 percent pure tungsten.

He said the development climaxed two years of intensive development work with alloys of tungsten, the metal with the highest melting point of all known elements. He said the accomplishment is vital to the nation's progress in meeting metallurgy requirements related to U.S. space exploration and that the attainment of 100 percent tungsten castings also would help reduce the cost of tungsten metal parts.

Prior to organizing Oregon Metallurgical Corp. in 1955, Shelton headed the U. S. Bureau of Mines' Northwest Electro-Metallurgical Laboratory here.

# IT <sup>be</sup> CAME <sup>possible</sup> BY UNION PACIFIC

## AUTOS, TOO, TRAVEL BY RAIL MORE DEPENDABLY, ECONOMICALLY

For time-and-cost conscious shippers, Union Pacific Railroad provides an expanding fleet of specially designed "auto transport" cars.

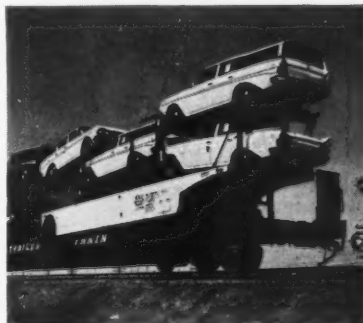
These include 85' flat cars, each accommodating two auto-trailer units which are trucked on and off the king-size "flats".

Another advancement in modern automotive shipping is a fleet of even larger capacity bi-level and tri-level "rack" cars.

Carrying up to 12 standard size autos or 15 compacts, cradled within the multiple decking, these huge units speed their cargo 'cross country swiftly and smoothly.

These innovations in auto-transport help to assure dependable on-time deliveries, reduced "delivery" costs and improved cushioned-care for cars carried over a smooth, traffic-free "highway of steel" from dockside to destination.

These new methods of transporting automobiles are not only used for transcontinental shipments, but to ship automobiles from California assembly plants to other western states served by Union Pacific with the finest in freight and passenger service.



## WHATEVER YOU SHIP WHENEVER YOU TRAVEL

You'll find that for the finest in freight and passenger service, including Union Pacific's famed Domeliners, it pays to be specific  
*ship and travel*



... for more details, circle No. 88 on Reader Service Postcard

## Fabriform Metal Brazing Acquired by LA Group

LOS ANGELES — A group of local businessmen headed by *A. M. Thompson*, have formed a corporation and purchased the assets of Fabriform Metal Brazing, Los Angeles metal joining company, from the George Getz Corp. of Chicago.

With Thompson as president, the new corporation will be known as Fabriform Metal Brazing, Inc., and will continue operations from its present location at 7720 Maie Ave., here. Thompson, who has been General Manager of Fabriform for a number of years, stated that the company does not contemplate any changes in its present operation.

The acquisition returns Fabriform once more to a wholly owned Western corporation as it had been before the Getz purchase in 1954. Fabriform has been on the Los Angeles industrial scene for more than 28 years.

Other officers of the new corporation include *Roy N. Omans*, who will act as executive vice president, *Deryl D. Shumway*, vice president, and *Frank R. Gasdia*, secretary-treasurer.

## Colbuk Printed Circuit Plant Nears Completion

CHATSWORTH, CALIF. — The new printed circuit plant for Colbuk, Inc. in Canoga Industrial Center, San Fernando Valley, is expected to be in full production this month. The new plant, a wholly-owned subsidiary of Bureau of Engraving, Inc., Minneapolis, Minn., represents an initial investment of \$200,000 in building and equipment.

The building, designed for ready expansion, covers 6,500 sq. ft. on one level of which 5,050 sq. ft. of area is devoted to manufacturing.

*Bernard Goldwasser* is general manager of Colbuk, *Sam Ballard*, production manager, and *Robert C. Williams*, quality control manager.

## Clark Equipment Names San Diego Distributor

SAN DIEGO, CALIF.—Chas Myers Industrial Trucks at 1210 Delevan Dr., here, has been appointed to sell and service fork trucks and other materials handling equipment produced by the Industrial Truck Div. of Clark Equipment Co., Battle Creek, Mich.

*John E. Mitchell*, general sales man-

## Reeves Handles New GE Industrial TV Line



Shown holding the new General Electric TE9-B TV camera used in closed circuit industrial systems is *C. M. Brainard*, vice president, Reeves Electronics Inc., Los Angeles. Camera system is considerably more compact as compared with older system, left, is transistorized, automatic, light weight, self contained and has no operating camera controls. Unit will tolerate changes of 30% in line voltage without noticeable effect on picture quality.

ager of the division, said the new dealership will serve San Diego and Imperial counties. It was formerly a branch of Robert H. Braun Co., Clark's Los Angeles sales and service facility.

# NOW! SAVE OVER 35%

## BAUER GEAR MOTORS

Save you money right from the start



Precision Built With Quality Materials at 1/3 Less Than the Cost of Domestic Gear Motors

West Germany's number one gear motor, designed by master craftsmen for the American market, is produced by Bauer with over 30 years of experience in the design of low-speed drives.

Bauer Gear Motors save you money in initial cost . . . and with lifetime low maintenance and service. These totally enclosed motors are designed for use in any position, vertical, horizontal, or wall-mounted. Helical gears of high-grade, case-hardened steel assure silent operation. 1/50 to 30 H.P. 0.3 to 400 rpm.

Distributed By

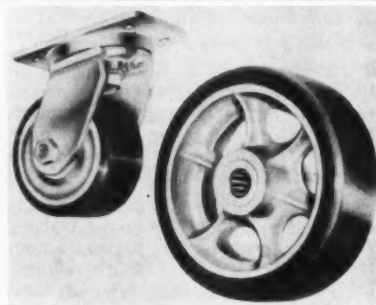


42 YEARS

SINCE 1919

1120 So. Main St., Los Angeles 15  
Phone RI 7-0221

. . . for more details, circle No. 89 on Reader Service Postcard



roll em quietly

WRITE OR PHONE FOR LITERATURE



5584 ALHAMBRA AVE., LOS ANGELES 32  
CApitol 1-5148

. . . for more details, circle No. 91 on Reader Service Postcard  
WESTERN MANUFACTURING/JUNE 1961



## New Owners Jet Tool to Double Plant Size

LEMON GROVE, CALIF. — Four San Diego area men headed by *Norman C. Kirkpatrick* have announced the purchase of the Jet Tool Co. at 7592 North Ave. here, and simultaneously plans to double manufacturing facilities to more than 16,000 sq. ft.

Jet Tool manufactures tooling, ground support equipment, detail parts and assemblies for airborne and space vehicles, specializing in the machining and fabrication of exotic metals. The company also produces a line of wood cutting tools on which it holds patents.

Kirkpatrick, formerly associated with Hewitt & Faust Mfg. Co., El Cajon, Calif., is new president of the company, which is reorganizing and named Jet Tool Co., Inc. Other officials are *Howard L. Nichols*, vice president manufacturing; *R. J. Fagan*, treasurer; and *Cleve L. Kirkpatrick*, assistant secretary.

## Duro-Matic Co. Names New Solenoid Representative

CULVER CITY, CALIF. — The Solenoid Div., Duro-Matic Products Co. has appointed Wesrep Corp., Los Angeles, as a representative of its solenoid facility.

Duro-matic manufactures custom designed solenoids for military and commercial production at an integrated plant. Wesrep will cover California, Nevada, and New Mexico.

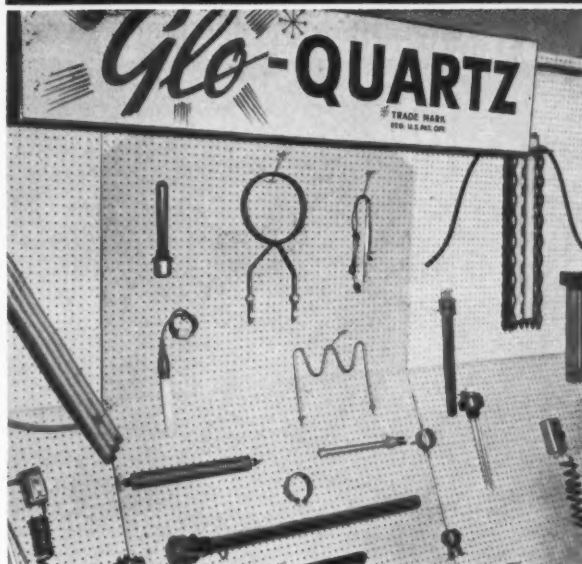
## Hopkins Engineering Acquired by Litton

BEVERLY HILLS, CALIF. — Litton Industries has acquired Hopkins Engineering Co. of San Fernando, Calif., manufacturer of micro-miniature capacitors and radio interference filters, *Charles B. Thornton*, president and chairman of the board of Litton, has announced.

The purchase is being made with an undisclosed amount of Litton stock. Hopkins will become part of the Components Group of Litton.

The Hopkins components will complement Litton's component activities in numerous fields such as microwave transmission, variable resistors, transformers and printed circuits.

With current sales over \$1,500,000 annually, Hopkins employs more than 100 persons. The plant is located on a six-acre site at 12900 Foothill Blvd., in San Fernando.



**Industrial Electric Heaters All Types**

**Quartz Infra-Red Ovens**

For drying, baking paints, plastics, cores and other processes

**Write for Free Literature!**

IMMERSION UNITS Available in Copper, Steel, Stainless Steel, Quartz, Impervious Graphite, etc.  
Specialized Industrial Heaters for Electronic and Missile Industries.  
For Heating ALL LIQUIDS!

Manufactured on West Coast by

**Glo-Quartz ELECTRIC HEATER CO., INC.**

NEW LOCATION: 188 No. Berkeley Ave., Pasadena, MU 1-4891

... for more details, circle No. 92 on Reader Service Postcard



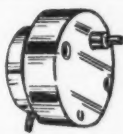
**BODINE**  
1/2000 to 1/4 H.P.  
Geared - Non Geared - Sync.  
Takeup - Variable Speed - D.C.  
3 Phase - Single Phase  
Authorized Distributor & Service Station



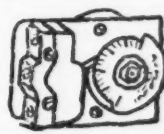
**ELECTRONIC VARIABLE SPEED**  
Motor Controllers  
1/100 to 10 H.P.



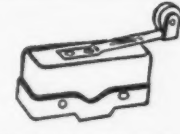
**SMALL LOW COST BEAD CHAIN DRIVES**  
for motion between elements in instruments, machines, displays, etc.



**BRISTOL TIMING**  
and Display Motors  
1/2 R.P.D. to 600 R.P.M.



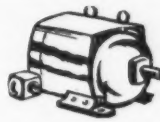
**RECYCLING TIMERS**  
Also quick reset, multiple cam, single cycle, special cams and custom built timers.



**UNIMAX PRECISION**  
Snap-Acting Switch.  
Large variety of styles and sizes in stock.



**SPEEDWAY**  
1 to 300 R.P.M.  
Geared & Non Geared for Bar-B-Q's - Coin Machines, Animated Displays.



**LELAND**  
1/4 to 10 H.P.  
Explosion Proof - Variable Speed - Instant Reverse, D.C.  
- 3 Phase - 1 Phase.



**ZERO MAX**  
1/15 to 3/4 H.P.  
Infinitely Variable Speed Transmission - 0-400 RPM.  
Authorized Distributor & Service Station

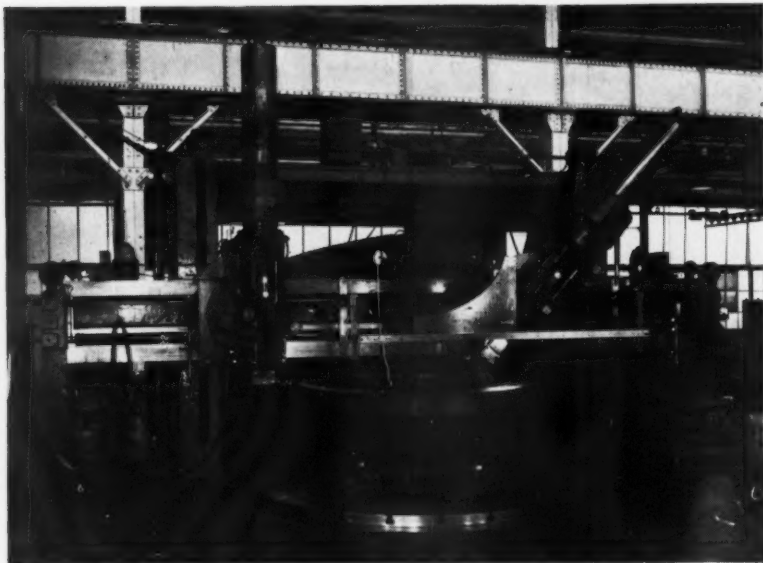
**MINARIK - Call MAdison 4-3161**  
ELECTRIC COMPANY

224 E. Third St., Los Angeles 13, California

FREE LITERATURE ON REQUEST

... for more details, circle No. 93 on Reader Service Postcard

## Record Size Ductile-iron Casting Die Machined Here



Shown setup for machining is the largest ductile-iron casting die ever cast. One piece, 20-tons, 78 in. OD by 22-in., unit was cast and machined at National Supply Co., Torrance, Calif., for Ryan Aeronautical Co. by use of a MIMIK #3060 tracer unit on a 14-ft. vertical boring mill. Die was machined in two passes to a true parabolic curve held to .002-in.

### Bissett-Berman Moves to Larger Facilities

SANTA MONICA, CALIF. — Bissett-Berman Corp. has moved from its former West Los Angeles offices to larger quarters comprising 8900 sq. ft. at 2941 Nebraska Ave., Santa Monica, it was announced recently by *Bernard Berman*, president. The change was made necessary by the establishment of new research and development laboratories and by a recent substantial increase in scientific and engineering personnel, Berman said.

Bissett-Berman is engaged in systems studies and development activities in the field of information electronics.

### Osborne Electronics Names Graybar Equipment Outlet

HAWTHORNE, CALIF. — Graybar Electric Co., Inc., is newly appointed distributor for two-way radio communication equipment made by Osborne Electronics Corp., according to *G. L. Osborne*, president.

The move was made to outlet two-way radio equipment to a wider range of industrial users interested in lower cost of operations. Osborne has expanded their line to include fully transistorized transceiver units that fit into the class 'DD' equipment field.

### Almquist Named Orange Ct. Rep for Rockwell-Delta Lathe

LOS ANGELES — Almquist Tool & Equipment Co. is new Orange County and Los Angeles distributor for Rockwell Manufacturing Co.'s Delta Lathe line, according to *Roland J. Wuertz, Jr.*, Almquist vice president and marketing manager.

The Delta line includes several models of 10-in. and 11-in. lathes and hand screw machines. Most models of the Delta line are available for immediate shipment from the Almquist warehouse, Wuertz said. Representing Delta in the agreement was *George Wulff*, Rockwell regional manager.

### Cetron Acquires Rights to Make New Epoxy Resin

PASADENA, CALIF. — Cetron Electronic Corp., through its plastics division here, has announced acquisition of the processes and services of Brian Wainwright of Tucson, Ariz., for the manufacture of a new epoxy resin that will be marketed in the unique form of a pencil.

*Paul Wallins*, president of Cetron, said the non-toxic material, now utilized by semiconductor manufacturers to seal transistors, offers a simple solution for most industrial problems involving bonding, cementing, sealing and insulating.

### Industry Disaster Plan Sought by Los Angeles

LOS ANGELES — Support for an effective area-wide disaster plan to protect the manufacturing capability of Southland industry is being sought by the Los Angeles Chamber board of directors.

Not only including hostile attack, the program will hopefully provide emergency plans for natural disasters. According to *Kenneth Barrett*, chairman of the chamber's industrial security committee, there exists an urgent need for development of a workable general emergency and disaster plan for the greater Los Angeles industrial complex that will fit into existing Department of Defense and Civil Defense mobilization practices.

"Los Angeles area industry, apart from transportation, fuel and communications, has not been approached to date on organization of a carefully and completely coordinated survival and recovery plan that could be carried out through normal management channels," Barrett said.

Leadership for the program would be drawn from organizations including Merchants and Manufacturers Assn., Los Angeles Chapter, National Safety Council, Western Oil and Gas Assn., and area industry.

### Boice Gages Acquires California Gage Firm

SANTA MARIA, CALIF. — Boice Gages, Inc. of Hyde Park, N. Y., manufacturers of precision measuring instruments, has acquired Reli-A-Chek Corp., gage manufacturer, here.

"This acquisition is another step in our program of growth and expansion," *Ralph A. Boice*, president of Boice Gages, Inc. said, "and gives us expanded product lines and modern production facilities on both Coasts."

According to Boice, the subsidiary company will be re-named Reliant Gages, Inc. *William J. Kassen*, president of Reli-A-Chek, will become president of Reliant Gages, Inc.

Several new types of dial indicating gages, acquired from Reli-A-Chek Corp., will be added to the Boice line.

Reli-A-Chek's chrome process thread gages, and other fixed gages, will be manufactured in the California plant and will be marketed as Reliant gages.

## Convair Building Underwater Explosion Facility

SAN DIEGO, CALIF. — Convair Astronautics Div. of General Dynamics Corp. is building a controlled underwater explosion facility to use in forming parts for the Atlas intercontinental ballistic missile and the Centaur hydrogen-powered space vehicle.

The \$40,000 facility will be ready for operation June 1. The 16,000 sq. ft. area will comprise two buildings, a 12-foot explosion forming tank, a five-ton hoist and two blast magazines.

Astronautics officials said the new forming method will reduce tooling costs by 40 per cent. They said the division plans to use the technique to fabricate bulkheads, tubing and ducting.

Bulkheads now are trimmed, hand-fitted and welded on special-purpose fixtures. Using explosive forming, the pieces of metal can be assembled flat, rolled into a cone and shaped without the need for expensive tooling equipment.

Metal plates will be submerged in the forming tank directly over a tool die in the bottom. Water between the metal plate and die is removed with a vacuum hose. The blast forces the water and the metal into die cavity to form the part.

## Western Representatives Named by Hilliard Corp.

SAN FRANCISCO — The N. A. D'Arcy Co. of Huntington Park, Calif. and the Hood Engineering Sales Co. of San Francisco have been named Southern and Northern California representatives for the Hilliard Corp. of Elmira, N. Y.

The two appointees will handle sales and service for the Hilliard industrial clutch line covering single revolution clutches, intermittent drive units, over-running clutches and clutch couplings, slip clutches and slip clutch couplings.

The D'Arcy firm is located at 7535 Marbrisa St., Huntington Park and Hood Engineering has facilities at 1485 Bayshore Blvd., San Francisco.

## Warehouse Underway for Allen Oil Tool

ANCHORAGE — The Allen Oil Tool Co. of Seward has announced the start of construction on a new combination warehouse and office building in Soldotna.

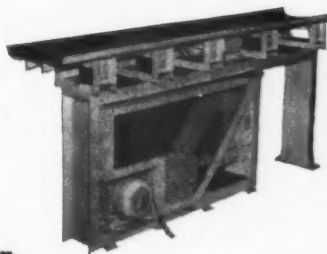
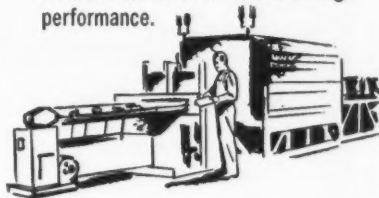
**WHIZZING LUGGAGE ALONG  
AT 300 FEET PER MINUTE...  
OR INCHING FORGINGS FORWARD  
AT 300 FEET PER HOUR...**



Unique traveling diverter delivers luggage to claiming counter at the end of the incoming conveyor lines at United Air Lines' bright new terminal at New York's Idlewild International Airport.

## IT'S ALL IN A DAY'S WORK FOR MATHEWS ENGINEERS

Whether it's a high-speed belt conveyor system smoothly handling the luggage of modern air travelers, or a LIVE-FLO oscillating conveyor upon which small parts are quietly but surely creeping along, you can be sure that it's Mathews engineered to deliver outstanding performance.



A new concept in oscillating conveyers—LIVE-FLO—is without equal where slow speed and complete control are important



**MATHEWS CONVEYER COMPANY WEST COAST  
SAN CARLOS, CALIFORNIA**

LOS ANGELES • PORTLAND • SEATTLE • DENVER • FORT WORTH  
DALLAS • HOUSTON • EL PASO • HONOLULU, T. H. • SALT LAKE CITY

**MATHEWS**  
*Over Fifty Years of Leadership in Mechanized Handling*

... for more details, circle No. 94 on Reader Service Postcard





### New DARNELL MANUAL

Fully illustrated . . .  
includes drawings  
and specifications,  
complete information



## CASTERS DARNELL WHEELS

There is a type of Darnell Caster or Wheel for every kind of use and floor. Made for light, medium and heavy-duty service you are sure to find in the Darnell line the exact caster or wheel to meet your individual requirements.



SEE THE  
YELLOW  
PAGES FOR NAME OF  
NEAREST DEALER  
OR WRITE DIRECT  
TO FACTORY

### DARNELL CORPORATION, LTD.

DOWNEY (Los Angeles County) CALIF.  
37-28 SIXTY-FIRST, WOODSIDE 77, L.I., N.Y.  
36 NORTH CLINTON ST., CHICAGO 6, ILL.  
1000 PEACHTREE N. E., ATLANTA, GA.

. . . for more details, circle No. 95

## United Air Lines' New San Francisco Engineering Lab

SAN FRANCISCO — An airline engineering laboratory, covering 4,000 sq. ft. and equipped to handle all phases of engineering testing has been established at the San Francisco maintenance base of United Air Lines. It has been under development for 11 years as part of United's planning for jet operations.

According to W. C. Mentzer, vice president-engineering, the lab will yield savings for United and result in better products for both the company and the industry.

"Laboratory findings often determine the type and specifications of products purchased by United," Mentzer reports. "If equipment is rejected, the vendor receives detailed, explanatory reports. Corrective action often means an improved product for the entire aviation industry."

United's laboratory is divided into four basic sections: chemical, metallurgical, electronic and mechanical. In the chemical section various liquid products used in overhauling aircraft are carefully analyzed and checked for efficiency and potentially harm-



John F. Maggio, metallurgical engineer in new laboratory of United Air Lines at San Francisco, adjusts lens of metallograph for microscopic study of turbojet engine blade (left hand). The lab is equipped with the latest instruments for analysis and testing of materials used in airline operations.

ful ingredients.

The metallurgical section has equipment to test all metals used on United's airplanes and in manufacturers' products. A constant check is made for metal fatigue or any other type of structural change.

Checks are made on aircraft control systems such as radio, instrument, navigation and radar equipment in the electronic section. A data recording machine can simultaneously gather information from 25 different sources on an airplane.

Instruments, gauges and other equipment affected by altitude changes are tested in a large pressure chamber which simulates altitude conditions as high as 50,000 ft.

A general workshop area, complete with metal lathes, bench saws, metal bending vises and other equipment used in various types of fabrication work, comprises the mechanical section of the lab.

During the last several years, United has developed many technical innovations adopted by manufacturers and other airlines. Among these are a rotating navigation light which improves visibility of night-flying aircraft and a precision bearing tester which enables shop mechanics to evaluate engine bearings faster and more efficiently.

Inventions and innovations such as these prompted establishment of the testing laboratory, according to Evan A. Jensen, staff engineer.

## Louden

SINCE 1867 . . .  
MONORAIL  
& CRANES

THE FIRST NAME IN MATERIALS HANDLING

### SAN FRANCISCO

#### ACME EQUIPMENT COMPANY

801 Minnesota Street  
San Francisco 7, California  
Telephone: VAlencia 4-5700

### LOS ANGELES

#### THE AJAY COMPANY

3201 West Beverly Boulevard  
Montebello, California  
Telephone: RAymond 3-0277

### SEATTLE

#### CHARLES INDUSTRIAL SALES COMPANY

7510-5th Avenue South  
Seattle, Washington  
Telephone: PArkway 3-9880

. . . for more details, circle No. 95



## H. H. Robertson Selects Port of Stockton Site

STOCKTON, CALIF. — A new West Coast plant of H. H. Robertson Co., Pittsburgh, Pa., manufacturer of building products, will begin production by mid-year in the Port of Stockton Industrial Tract here.

In its first production facility west of the Mississippi, Robertson will produce cellular steel roof and floor deck, insulated metal curtain walls and other architectural building products in a new building in the 257-acre industrial tract. The new plant will be headed by D. J. Haack, transferred to Stockton from the company's principal plant at Ambridge, Pa., near Pittsburgh.

A. W. Coffman, president of H. H. Robertson Co., who credits the Stockton Chamber of Commerce with help in expediting the move, said the new production facility will help serve customers on the West Coast and speed up shipment of finished products to overseas markets.

## S. K. Wellman Building at South San Francisco

SAN FRANCISCO — The S. K. Wellman Co., manufacturers of metallic friction materials, broke ground recently in South San Francisco's Airport Boulevard Industrial Park for a new building to house its Northern California and Western Nevada sales and distribution facilities.

G. F. Mathews, Jr., branch manager, said the new plant, to be located at 508 Airport Blvd., will cost about \$200,000. Completion is expected in June. For the past several years the firm has been located at 2166 Palou Ave., San Francisco.

The Wellman firm, with headquarters at Bedford, Ohio, makes metallic clutches and brakes for use in the automotive, earth-moving, heavy industry and aircraft industries.

## Kaiser Refractories Open Utah Distribution Office

SPRINGVILLE, UTAH — The establishment of a new distribution facility for refractory producers in the Inter-Mountain area has been announced by J. T. Putnam, Western general sales manager, for Kaiser Refractories & Chemicals Div., Kaiser Aluminum & Chemical Sales, Inc.

The facility is located at Fourth West and Seventh South, Springville.

## Berven Rug Mills Plan Fresno Plant Expansion

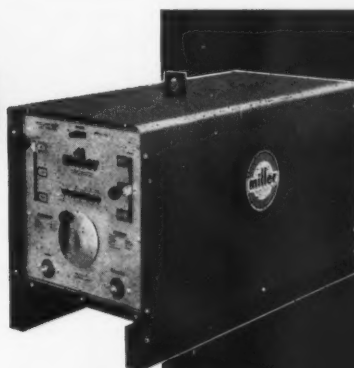
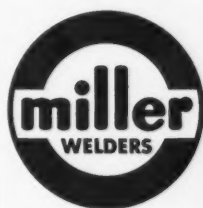
FRESNO, CALIF. — Joseph A. Kay, general manager of the Berven Rug Mills, has disclosed plans to enlarge the company's manufacturing facility here by constructing a 37,500-ft. building immediately adjacent to the present mill complex.

Present programming, Kay said, contemplates the completing of construction of the concrete block building by mid-summer and full operational status by early fall.

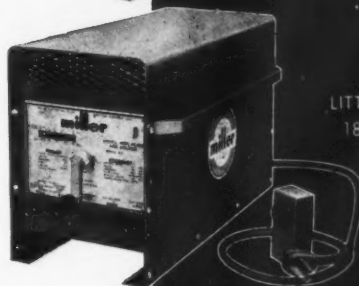
## Summers Gyroscope Renamed Guidance Technology, Inc.

SANTA MONICA, CALIF. — Guidance Technology, Inc., is the new name for Summers Gyroscope Co.

The name change, approved by the stockholders in their annual meeting here last month had been recommended by the directors in order to represent more clearly the company's present activity in the production of autopilots and other guidance systems, as well as many non-gyroscopic components of guidance systems.



BIG TWIN  
250 AC DC



LITTLE TWIN  
180 AC DC

## AND BOTH MILLERS... Through and Through

BIG TWIN combination ac-dc welders work from single phase service — deliver new convenience and economy. Two a-c amperage ranges of 20-125 and 60-290 plus two d-c ranges of 18-100 and 65-290 amps master nearly every welding requirement from light gauge metal to structural pieces. Movable shunt type transformer affords infinite current adjustments. Other features include: Horizontal design for easy stacking; weather-resistant construction and Class B insulation; Miller-built semi-metallic rectifier for best d-c welding; high open circuit voltages and new weld stabilizer. This is THE all-time, all-around welder!

LITTLE TWIN ac-dc combination welder has two a-c amperage ranges of 20-115 and 60-180 plus one d-c range of 40-150. Operating from single phase service, this Miller model incorporates many design and construction features usually found only in large industrial types. These include really rugged construction, forced air cooling, new Miller semi-metallic rectifier, movable shunt type current control, new weld stabilizer and open circuit voltage in abundance. Power factor correction is available on both models. Complete specifications on either model will be sent promptly upon request.

**miller** ELECTRIC MANUFACTURING

Distributed in Canada by Canadian Liquid Air Co., Ltd., Montreal

COMPANY, INC. • APPLETON, WISCONSIN

... for more details, circle No. 97 on Reader Service Postcard



## Columbus McKinnon Opens New San Francisco Branch

SAN FRANCISCO — *Arthur H. Luchs*, regional manager of Columbus McKinnon Corp., has announced the opening of a manufacturing, sales and service branch at 955 Indiana St., here.

The branch will provide rapid delivery and service to West Coast area distributors and users of Chisholm-Moore Hoist Division hand and electric hoists and Columbus McKinnon Chain Division welded link chains and attachments. The company headquarters in Tonawanda, N. Y.

The facility is housed in a new building specially designed and constructed for this operation.

## New Departures Relocates Bay Area Facilities

SAN FRANCISCO — The New Departure Div. of General Motors Corp., producer of ball bearings, has relocated its sales and engineering office serving the San Francisco area from Berkeley to 645 Marshall Court, Redwood City, Calif.

Reason for the move, as explained by *Waldemar C. Willey*, manager of company's sales activity in that area, is to be more suitably situated in a region wherein manufacturing and research are expanding on the part of many companies.

New Departure's West Coast main sales, engineering office and warehouse are located at 3650 Broadway, Los Angeles. *David L. Clark* is manager of the overall territory.

## Western Gear Corp. Appoints Utah Rep

BELMONT, CALIF. — The Industrial Products Div. of Western Gear Corp., here, has appointed *C. H. Spencer & Co.*, of Salt Lake City, as sales representatives in the Utah area, according to *E. W. Jenks*, marketing manager of the division.

*C. H. Spencer & Co.* located at 210 West 33 South St., Salt Lake City, has sent three of its salesmen: *Ray Nelson*, *Jack Peck*, and *Roger Bachman*, to a Western Gear factory training program to familiarize them with the company's gear motors, speed reducers, and other power transmission products.

Western Gear specializes in mechanical power transmission equipment and custom engineered machinery.

## H-30 PAYLOADER®



Photo courtesy Freeport Sulphur Co.  
— a 10-year PAYLOADER user.

## for tough bulk-handling jobs

The Model H-30 was introduced a year ago and has been so successful that many owners have already purchased additional units. Although it is the smallest 4-wheel-drive "PAYLOADER", it has an operating capacity of 3,000 lbs. and the latest improvements and features found in the larger models—is way ahead of all other loaders near its size.

**Traction and Digging Power:** 77½ h. p. gasoline or 71½ h. p. diesel power and 4-wheel drive on big 12:00x24 tires, plus torque-proportioning differentials give it outstanding digging and go power indoors or out.

**Fast, Safe and Easy Operation:** Full power-shift transmission plus torque converter give 3 speed ranges in each direction up to 25 m.p.h.; instant on-the-go fingertip shifting (no foot clutch); power-steer; safety boom arms (all moving parts ahead and clear of the operator); sealed 4-wheel brakes (hydraulic) give positive braking and low maintenance; "operator's choice" dual brake pedals permit braking with and without transmission engaged.

**Fullest Operator Visibility:** Simplified boom design and slope-down front end let operator see the bucket action at all times and give him excellent all-around visibility.

**Easy Servicing, Low Maintenance:** Battery, engine and other points easily accessible; sealed, pressurized hydraulic system plus double filtering.

**The Tougher Your Bulk-handling requirements, the more you need "PAYLOADER" dependability.** A Hough Distributor is ready to give you complete data on the H-30 or any other of the 20 models—from 2,000 to 12,000 lbs. capacity. He also has the finest service in the rubber-tired loader industry.

# HOUGH®

THE FRANK G. HOUGH CO.  
889 Sunnyside Avenue



LIBERTYVILLE, ILLINOIS

SUBSIDIARY - INTERNATIONAL HARVESTER COMPANY



Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

☐ Send data on H-30 PAYLOADER

☐ Send data on other models and attachments

6-8-2

... for more details, circle No. 111 on Reader Service Postcard



## General Appraisal Co. Occupies New Quarters

SAN FRANCISCO — The General Appraisal Co. has moved into new offices at 49 Fremont St., here, according to an announcement by *Arthur J. Baggenstos*, district manager.

*W. M. McCloy*, president, said the tremendous demand for industrial and commercial appraisals in Northern California, especially in the San Francisco Bay Area, required expanded facilities.

General Appraisal also has offices in Seattle and Spokane, Wash.; Boise, Ida.; Portland, Denver, Los Angeles and San Diego, Calif., and in Honolulu.

## NGE Inc. Appoints New Western Representatives

PASADENA, CALIF. — Natural Gas Equipment Co. has recently appointed representatives in Salt Lake City and Denver. *C. H. Spencer Co.* will handle Salt Lake and Mechanical Equipment Co. will represent the firm in the Denver area.

Another office in the Seattle area is planned. The firm also has offices in South San Francisco and Bakersfield, Calif. In addition to their industrial furnace and combustion equipment manufacture, the firm has recently installed an 11 stand combination roll forming mill to produce stainless strip along with aluminum colored siding.

Also being produced is a new design on a basket weave style colored aluminum fence. Present plans call for a move into larger facilities to accommodate rolling operations as well as to provide additional fabricating facilities for their industrial furnace division.

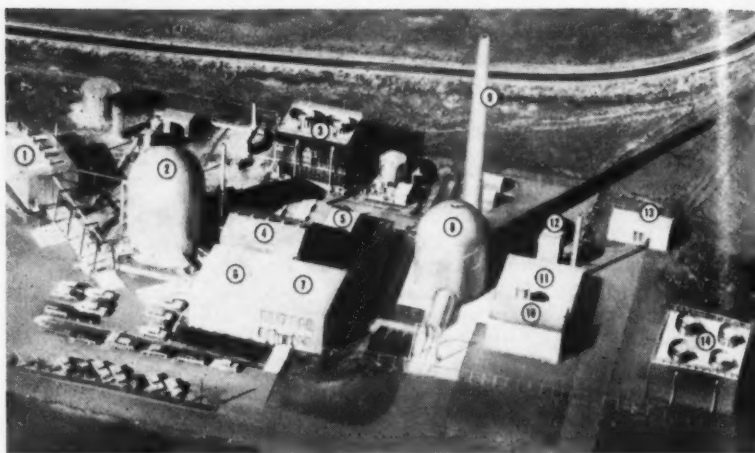
## Kaman Nuclear Division Tripling Facilities

COLORADO SPRINGS, COLO. — Kaman Aircraft Corp. of Bloomfield, Conn., has announced it will triple its Kaman Nuclear Div. facilities here within the next six months.

Construction of a two-story building that will increase floor space from 10,000 to 31,000 sq. ft. was begun last month. The expanded facilities will enable the firm to increase its staff from 70 to near 200.

Kaman Nuclear produces a pulse neutron generator and conducts research, development and testing for government and industrial sponsors.

## GE's Projected Vallecitos Superheat Reactor



PLEASANTON, CALIF. — The \$8,000,000 superheat development reactor which General Electric will build at its Vallecitos Atomic Laboratory here for operation in 1962 is shown above in an artist's conception of the completed plant site.

Designed to help extend the technology of nuclear superheat for eventual application to large scale nuclear plants, the superheat reactor will be built, owned and operated by the Company's Atomic Power Equipment Department (APED), San Jose, Calif. A group of seven New York state investor-owned utilities, known as the Empire State Atomic Development Associates, Inc., is providing \$5,750,000 toward the superheat development program as part of its program to prepare for eventual construction by one or more of its members of a large nu-

clear power station in New York State.

The new 12,500 thermal-kilowatt reactor, to be known as the Vallecitos Experimental Superheat Reactor, (VESR), is being built near the Vallecitos Boiling Water Reactor so that it can utilize the VBWR's steam production and its condenser facilities.

Existing buildings and facilities shown are: (1) VBWR's fuel storage building; (2) containment vessel; (3) cooling tower; (4) turbine building; (5) miscellaneous warehouses and equipment shops; (6) present control room. New facilities to be constructed are VESR's (7) control room addition; (8) containment vessel; (9) exhaust stack; (10) dump condenser building; (11) miscellaneous equipment building; (12) gas-fired boiler; (13) warehouse; (14) cooling tower.

## Swartwout Div. and TRW Computers in Agreement

LOS ANGELES — TRW Computers Co., a division of Thompson Ramo Wooldridge Inc., and the Swartwout Div. of Crane Co., Chicago., have entered into an agreement to provide complete automatic control systems to the chemical, petrochemical, and petroleum industries, it was announced recently by *Dr. Joseph F. Manildi*, general manager of TRW, and *Edward B. Cook*, general manager of Swartwout.

The agreement, which makes the complementary equipment and technical resources of each company available to the other, enables both companies to meet more comprehensive and complex systems needs.

## Construction Underway on Philipsburg Sawmill

BUTTE, MONT.—The Montana Forest Products Co.'s \$1,000,000 sawmill in Philipsburg is scheduled to start production by July 1, announced *K. L. Noss*, manager of operations and mill superintendent.

Construction started April 5 with 18 men employed at the project. The mill will process small timber from the forest areas in the vicinity, using lumber from both Forest Service and private lands. In addition, the firm will produce chips to be sold to paper-producing companies.

*Duane Autzen* of the Portland Manufacturing Co., is president of the Montana Forest Products Co. He maintains headquarters in Portland.



## Kimberly Clark Acquires Western Distributor Firm

SAN FRANCISCO — Blake, Moffitt & Towne, pioneer Western wholesale paper distributor with headquarters here and operations in six states, has been acquired by Kimberly Clark Corp. of Nennah, Wisc.

The acquired firm will become a division of Kimberly Clark and will continue its present operations through its 18 divisions in California, Oregon, Washington, Idaho, Nevada and Arizona.

Arthur W. Towne, head of Blake, Moffitt & Towne, will remain in charge of the division and the present management will remain intact.

## Oronite Div. Ships First Packaged Maleic Anhydride

SAN FRANCISCO — The Oronite Div. of California Chemical Co., a subsidiary of Standard Oil of California, has shipped the first order of packaged maleic anhydride from its new plant in Richmond, Calif.

The new plant, now completely on-stream, is the first facility constructed in the West to manufacture the chemical maleic anhydride. The initial shipment of 30,000 pounds was trucked to an Oronite customer in the West. Maleic anhydride is a chemical intermediate produced from benzene. It is widely employed in the production of plastics for boats and automobile bodies as well as being used in high grade paints, textile wetting agents and agricultural chemicals.

The new multi-million dollar plant, started in March, 1960, has the capacity to produce 20,000,000 pounds of maleic anhydride a year, in both molten and briquette form.

## Pac/Wall Opens Bay Area Branch Service Facility

LONG BEACH, CALIF. — Opening a branch office in San Francisco and the appointment of D. R. Jacobsen to head the branch as Northern California district manager, was announced here by D. B. McFarland, president of Pacific Curtainwall, Inc. The Bay Area office is at 351 Eleventh St., San Francisco.

Complete services including sales, engineering and installation of Pac/Wall custom and standard curtain wall systems are available from this office.

# roof repair?

composition

gravel

metal



## monoform

SYSTEM

### monolithic application



### fast-effective-proven

Modern roof maintenance—as well as new roof application and below grade membranes—now calls for the Flintkote Monoform system. Using the Sealzit gun, special Monoform compounds are applied simultaneously with chopped reinforcing glass fibres over prepared composition, gravel or metal roof surfaces—creating a monolithic membrane that is tough, resilient, weather resistant.



THE SEALZIT GUN IS MANUFACTURED UNDER THE FOLLOWING U.S. PATENTS: 2,787,314; 2,933,125, AND 2,813,751. OTHER U.S. PATENTS PENDING. PATENTED IN CANADA. WORLD-WIDE PATENTS PENDING.

# FLINTKOTE monoform\*

SYSTEM†

\* A TRADE MARK OF THE FLINTKOTE COMPANY † U.S. PATENT APPLIED FOR

**THE FLINTKOTE COMPANY**  
30 Rockefeller Plaza, New York 20, N.Y. or  
Box 2218 Terminal Annex, Los Angeles 54, Cal.

NAME \_\_\_\_\_  
FIRM \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

Please send bulletin MS-11

**WI-4**

... for more details, circle No. 112 on Reader Service Postcard

## Towmotor Establishes New Setup in No. California



New factory sales and service branch at 699 Fourth St., Oakland, Calif., houses Towmotor Corp.'s line of Towmotor-Gerlinger fork lift trucks, carriers and other material handling equipment.

OAKLAND, CALIF. — The Towmotor Corp. has opened a new factory sales and service branch here to serve the San Francisco Bay Area and eight surrounding West Coast counties. Simultaneously, the Cleveland-based manufacturer announced the appointment of the Blank Forklift Sales, Inc., 949 West Murray St., Eureka,

Calif., as representative for Eureka and eight coast counties.

The new Oakland facility is headed by *Leslie Andrew* as branch manager and *Art Regnier*, service manager. Both men have been connected with Towmotor for many years as specialists in material handling equipment and handling techniques. Com-

plete facilities are available, including factory-specified parts, emergency on-the-job repair service, preventive maintenance and rental and leasing services.

Included in the Towmotor-Gerlinger line are fork lift trucks with capacities ranging from 1500 to 40,000 lbs., straddle carriers with capacities to 60,000 lbs., and industrial tractors with capacities up to 4000 lbs., trailing loads to 98 tons.

The new organization at Eureka, Blank Forklift Sales, Inc., is headed by *Andrew Baku*.

## Juneau Marine Firm Adds Fiberglassing Chamber

JUNEAU, ALASKA—The Warner Co., has added a fiberglassing room to its facilities on So. Franklin St., here, to provide for small boat repairs and remodeling on a year round basis, according to *Peter Warner*, manager.

The new workroom is insulated and will be heated 24 hours a day, "an essential factor in working with modern resins," Warner said. The room is equipped with a concrete floor, monorails, ample lighting and other facilities.

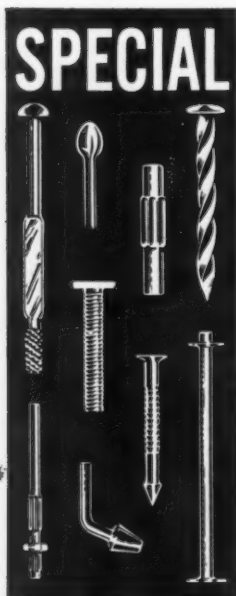
## SPECIAL FASTENERS

made especially for you by  
**HASSALL  
COLD HEADING**

- Any Metal
- To Specification
- On Time

A fastener is, indeed, a vital part of any product. Did you know that a fastener made to your specifications for your particular application can lower unit cost as well as assembly cost?

For proof, call on Hassall's cold heading experience for design assistance and quotation on challenging, hard-to-get or unusual fasteners. For ideas, send for catalog.



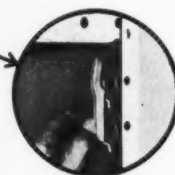
**JOHN HASSALL, INC.**

P. O. Box 2186  
Westbury, Long Island, N. Y.

LES SACHS ASSOCIATES A. J. HANSON  
Los Angeles, Calif. Seattle, Wash.  
Angelus 1-0168 SUNset 4-8030

... for more details, circle No. 113 on Reader Service Postcard

## NEW



**COMPRESSION  
SHELF CLIP**

## REPUBLIC CLIP SHELVING

Republic Clip Shelving allows you to use every square inch of your valuable floor space. You can save time and money, too. Here is a complete shelving line, including shelves, parts, accessories and related shop items. Every piece is Bonderized. Republic Clip Shelving erects fast and easy. No tools are required. It can be rearranged to satisfy shelving needs as they arise. It is completely salvageable. The new Shelf Clip requires no stud or other special fasteners. The shelf snaps firmly into place.

Let your Republic representative storage engineer your shelving problem for you. Call him anytime.



BERGER DIVISION



... for more details, circle No. 114 on Reader Service Postcard

## Work Clothes Company In Expansion Move

**SOUTH SAN FRANCISCO**—The H. D. Lee Co., Inc., producers of work and leisure clothes, has more than doubled the capacity of its distribution center here in an expansion move.

Constructed as an adjunct to Lee's present offices and distribution center, the new 25,000 sq.-ft. addition is located at 454 South Airport Blvd. in South San Francisco.

George W. Lee, vice president and general sales manager, said at Kansas City headquarters that sales gains on the West Coast had exceeded the rate of gain for the entire company and that rapid expansion of distribution facilities became necessary.

The new facility serves the eight-state area of California, Idaho, Utah, Washington, Oregon, Nevada, Hawaii and Alaska.

## Towne Equipment Appointed Tubar Spokane Distributor

**SPOKANE, WASH.**—Uhrden, Inc., Denison, Ohio, manufacturers of Tubar materials handling equipment, has announced the appointment of Towne Equipment Co., 622 N. Monroe St., here, as exclusive distributors for the State of Washington, including Ferry, Douglas, Grant, Whitman, Columbia and all other counties north.

Towne will also distribute Tubar unloaders, dumpers, work positioners, lifts and cranes in the State of Idaho including Idaho County and all other counties north and the State of Montana including Toole, Pondera, Teton, Cascade, Meagher, Gallatin and all other counties west.

## Pennsylvania Industrial Chemical Expands Service

**SEATTLE** — Technical service and warehouse stocks to serve the Northwest area has been announced by Arthur M. Patureau, Western Regional manager, Pennsylvania Industrial Chemical Corp. These services will be rendered through the W. Ron Benson Co., Seattle, and Portland, with warehouse facilities at the Security Transfer and Storage Co. and the Holman Transfer Co., respectively.

Pennsylvania Industrial Chemical Corp., with main offices in Clairton, Pa., manufactures synthetic resins and solvents for the floor tile, paint, coatings and rubber industries. The company has warehouse stocks in Los Angeles and San Francisco.

## Westinghouse Distributor for Salt Lake City Area

**SALT LAKE CITY** — Appointment of Mine and Smelter Supply Co.'s Salt Lake City branch as a Westinghouse Electric Corp. agent and distributor has been announced by H. B. Hodgins, Intermountain district apparatus manager for Westinghouse.

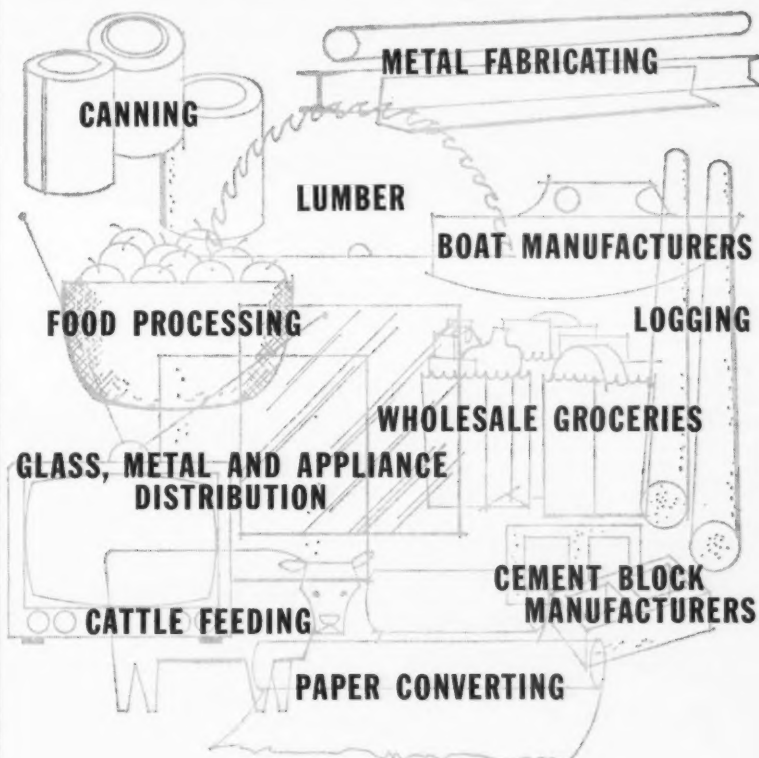
The company will distribute the full line of Westinghouse electrical equipment—electrical controls and industrial and commercial lighting, in its Intermountain marketing area.

## Columbine Pipe & Tube Established at Denver

**DENVER**—The Columbine Pipe & Tube Co. has been opened at 6121 Clermont St. by Alex Englander, owner and president of Empire Steel Corp.

Columbine has acquired the 12,000 sq. ft. structure formerly occupied by Ceco Steel Products Corp. for construction of industrial pipe and tubing.

A division of Columbine Pipe & Tube, Columbine Supply Co. has been established for supplying construction and building products.



Inventories in these and many other Western industries have been used by businessmen to provide adequate working capital or to finance expansion. Haslett Field Warehousing... a Western business... has worked with them for

over 60 years, providing expert knowledge and the finest field warehousing service. If your capital is tied up in inventory, investigate Field Warehousing through your banker or write direct to Haslett today

for your free copy of "more working capital through field warehousing," the 16-page book that gives the facts and figures about field warehousing.



680 Beach Street, San Francisco, Calif.

Telephone: PR 6-0270

... for more details, circle No. 115 on Reader Service Postcard





Alloy Steel & Metals Co. was selected as the first foundry to be licensed because of its outstanding performance in producing castings for defense projects.

#### ADVANTAGES OF "T-1" ALLOY STEEL CASTINGS

- Over 3-times yield strength of structural carbon steel.
- Weldable without preheating or post-heating.
- Outstanding resistance to combination of impact and abrasion.
- Reduces weight from 25% to 50%.
- Excellent "castability".

WRITE FOR BULLETIN NO. 300. -87

A dependable source for carbon, alloy & manganese steel castings since 1919.

**ALLOY STEEL & METALS CO.**  
1848 E. 55th St., Los Angeles 58, Calif.—LU. 3-3471  
... for more details, circle No. 116

## ARROW

### FREIGHT FORWARDERS

## COMPLETE

Coast-to-Coast

## SERVICE

**5<sup>th</sup>**  
and  
**6<sup>th</sup>**  
DAY

**EAST COAST**  
TO  
**CALIFORNIA**

**CALIFORNIA**  
TO  
**EAST COAST**

**7<sup>th</sup>**  
DAY

## ARROW

### FREIGHT FORWARDERS

LOS ANGELES  
2151 E. 7th St.  
AN 8-6755

SAN FRANCISCO  
175 Vermont St.  
UN 1-0442

... for more details, circle No. 117

120

## Contract News of the West

Largest single contract announced during the past month was a \$36,000,-000 award to *General Electric Co.*, Military Electronic's Dept., Los Angeles, for production of the Navy's AN/SPS-30 long range height finding radar. GE spokesmen said the new shipboard radars are used on missile cruisers and carriers of the U. S. fleet.

*Hughes Aircraft Co.*'s aerospace group, Culver City, Calif., was awarded two Polaris missile contracts totaling \$9,370,000. One contract for \$6,-970,000 was awarded by the Navy and calls for combining several Polaris inertial guidance platforms with electronic systems. The second, for \$2,400,000, was awarded by General Electric for several hundred replaceable electronic circuit boards for the digital computer used in the Polaris guidance unit.

The U. S. Army Ordnance District, Los Angeles, with headquarters at 55 S. Grand Ave., Pasadena, awarded more than \$6,500,000 to industries throughout Southern California, it was reported April 21. The awards included:

*Radioplane Div.*, Northrop Corp., Van Nuys, \$165,000 for target missile production; \$815,866 for target missile flight services; and \$920,000 for engineering services.

*Douglas Aircraft Co., Inc.*, Santa Monica, \$84,676 for Nike missile system spare parts and launching area items; and \$1,636,395 for guided missile trailers.

*Aerojet-General Corp.*, Downey, a \$794,112 classified contract.

*Harvey Aluminum Inc.*, Torrance, \$658,750 for cartridge cases.

*McCulloch Corp.*, Los Angeles, \$317,884 for target missile engines and \$167,915 for engineering services.

*Cubic Corp.*, San Diego, \$150,441 for continued research and development of an electronic trajectory measuring system.

*Precision Sheet Metal, Inc.*, Los Angeles, \$125,000 classified contract.

*Gillfillan Brothers, Inc.*, Los Angeles, \$117,280 for Corporal missile spare parts and telemetry equipment.

*AiResearch Mfg. Co.*, Los Angeles, \$102,788 for generators and motors.

*Radio Corp. of America*, Van Nuys, \$94,619 for receiver-transmitter.

*Associated Aero Science Labs*, Hawthorne, \$89,435 for technical instructions at Redstone Arsenal, Ala.

*California Institute of Technology*, \$74,000 for research and development; *Consolidated Western Steel*, Los Angeles, \$54,458 for Nike missile repair parts; *Bendix-Pacific Div.*, Bendix Corp., North Hollywood, \$48,308 for hydraulic valves; *Firestone Tire & Rubber Co.*, Los Angeles, \$37,067 for Corporal missile repair parts; *D. B. Milliken Co.*, Arcadia, \$35,843 for cameras and accessories; *Narmco Industries, Inc.*, San Diego, \$32,180 for research on graphite and tungsten; *Hughes Tool Co.*, Culver City, \$29,-970 for research on high energy oxidizer.

The San Francisco Ordnance District with headquarters at 1515 Clay St., Oakland, Calif., reported May 2 a total of \$2,191,185 in additional contracts. Of the total, \$1,793,914 of the work will be performed in the San Francisco Bay area. The new contracts:

*Food Machinery and Chemical Corp.*, San Jose, \$792,729 for continuing improvement program affecting the Army's new aluminum armored air-transportable personnel carrier, M-113; and \$561,260 for additional pilot models of the Pershing missile system vehicles.

*Pacific Car & Foundry Co.*, Renton, Wash., \$253,000 to continue development of a new family of self-propelled artillery vehicles; and \$37,509 for further testing of a light weight cargo carrier.

*Stanford Research Institute*, Menlo Park, \$99,287 for capability studies on the Nike Zeus anti-missile protection system; plus \$42,198 for supporting research on system studies for guided missiles.

*Isaacson Iron Works*, Seattle, \$79,-540 for more gun barrels for Davy Crockett battlefield weapon.

*Beckman Instruments, Inc.*, Berkeley, \$68,475 for a counter-timer necessary to calibrate electronic data equipment.

*National Seal Div.*, Federal-Mogul-Bower Bearings, Inc., Redwood City, \$48,803 for wheel hub seal assemblies. *Sylvania Electric Products, Inc.*, Mountain View, \$45,900 for advanced



## CONTRACT NEWS

(Continued)

type electron tubes.

*Beckman & Whitley, Inc.*, San Carlos, \$39,550 for safety destructor elements in missiles. *Tektronix, Inc.*, Beaverton, Ore., \$37,122 for oscilloscopes used in instrument calibration.

Other competitive awards included: *Camfield Chemical Co.*, Newark, Calif., \$24,888 for sulfuric acid. *Lenkurt Electric Co., Inc.*, San Carlos, \$24,428 for a proprietary single side-band FM telemetry system, with equipment. *Systron-Donner Corp.*, Concord, \$18,535 for digital display indicator for calibrating Ordnance electronic equipment. *Hewlett-Packard Co.*, Palo Alto, \$15,383 for variable precision attenuators used in microwave command signals. *Menlo Park Engineering*, Menlo Park, \$12,480 for microwave signal generators and amplifier.

Other contracts reported to WESTERN MANUFACTURING during the past month include:

*Sperry Phoenix Co.*, Phoenix, an automatic flight control system for Boeing Co.'s 727 Jetliner. Called the SP-50, value of the contract over the next several years was estimated at more than \$7,000,000.

*Garrett Corp.'s AiResearch Mfg. Div.*, Phoenix, \$5,200,000 for gas turbine compressors and power units from the Navy.

*Guidance Technology, Inc.*, Santa Monica, more than \$1,900,000 from Navy Dept. for a ground-controlled bomb directing system for light jet attack aircraft.

*Bendix Corp.*, Bendix-Pacific Div., North Hollywood, more than \$1,000,000 for submarine automatic maneu-

## Southland Firm Builds Astrodome Type Shelters



A plant yard at Parabam Div. Houston Fearless Corp., Hawthorne, Calif., is shown filled with Astrodome-type shelters that provide environmental protection for missile-tracking equipment. Firm makes domes from polyester-impregnated fibreglass cloth bonded to a thermal insulating core in a sandwich type construction.

vering control systems from U. S. Navy Bureau of Ships.

*Ramo-Wooldridge*, a Div. Thompson Ramo Wooldridge, Inc., Los Angeles, more than \$1,000,000 for design and construction of an automated, rapid-response full color display system for Dept. of Defense's Damage Assessment Center (DODDAC).

*Motorola's Semiconductor Products Div.*, Phoenix, \$841,000 for a semiconductor glass encapsulation program for Air Force.

*Electrosolids Corp.*, Panorama City, more than \$320,000 for design and production of 5 KW static inverters for Polaris submarine fleet from Bureau of Ships.

*Cohu Electronics, Inc.*, Kin Tel Div., San Diego, more than \$250,000 for 16 closed-circuit television systems for Titan operational silo missiles.

*Daystrom, Inc.*, Pacific Div., Los Angeles, \$100,000 follow-on for flight control stability reference gyroscopes from Autonetics Div., North American Aviation, Inc.

### Portland Offers Site for Aluminum Plant

PORTLAND — The Port of Portland recently offered a 230-acre tract for \$2,000 per acre to the Howe Sound Co., New York, as the site for a \$25,000,000 aluminum reduction plant.

Location of the site is in the River Gate industrial area.

## NEED INDUSTRIAL GLOVES IN A HURRY?



NOW—for the first time—gloves for more than 200 industries and trades catalogued, stocked, and priced for immediate delivery. No back orders...no delays. Orders received at our Oakland plant shipped immediately.

These are top-quality gloves designed for safety, comfort, and wearability by WICX-MERIT, manufacturers of gloves and protective garments for western industry for over forty years.

Without obligation, let us send you our latest catalog. Here is a valuable source of buying information complete with illustrations, application data, and prices. You are cordially invited to personally examine any of these items on request, without obligation. Just telephone Higate 4-1164, or mail the coupon.

### WICX-MERIT GLOVE CO.

Manufacturers of gloves and protective garments since 1920

YOURS  
FOR THE  
ASK-  
ING



### WICX-MERIT GLOVE CO.

1121 SEVENTH STREET • OAKLAND, CALIFORNIA

Gentlemen: Please send my free copy of your catalog and price list of industrial gloves and garments.

( ) I am particularly interested in \_\_\_\_\_

NAME \_\_\_\_\_

POSITION \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

... for more details, circle No. 118 on Reader Service Postcard

## Bay Area's First Commercial "Primary Standards" Lab



Electronic shop in the new headquarters building of Western Scientific Co., Inc., Redwood City, Calif. At the various stations pictured specialists in all types of electronic instruments do the highly specialized tasks and adjustments necessary to maintain, repair and calibrate electronic instruments.

REDWOOD CITY, CALIF. — Western Scientific Instruments Co., Inc. recently dedicated its new headquarters facility here at 890 Warrington Ave. The facility is Northern California's first commercial "primary standards" laboratory to offer electrical measurement standards certified as equal in accuracy to those of the U. S. National Bureau of Standards.

Heading the host group at the dedication was Jay H. Dobrin, president of the firm which provides programmed maintenance, repair and calibration of vital electrical and electronic instruments. Southern California headquarters and laboratory are located at Van

Nuys, near Los Angeles.

Literally a building within a building, the new standards laboratory is heavily insulated and completely air conditioned to enable maintenance of constant temperature and humidity conditions essential to accurate calibration of highly sensitive instruments.

Primary standards equipment in the laboratory must be hand-carried periodically to the U. S. National Bureau of Standards at Washington, D. C., or Boulder, Colo., for calibration against the Bureau's own precise standards and continuing certification as meeting those standards.

## Quantum Electronics New R&D Laboratory

SANTA ANA, CALIF. — The opening of Quantum Electronics Laboratories at 2109 South Wright St., here, has been announced by Quantatron, Inc., applied science firm of Santa Monica, Calif.

In making the announcement, Robert M. Salter, Jr., Quantatron's president, explained that the new facility is planning research and development on solid-state devices. Primary activity will be in special components for military and industrial applications.

Specific areas of interest include semiconductors and superconductors, with applications in the fields of computer elements, infrared detectors, generalized switching, and microelectronics.

## Establish Electronics Company at El Segundo

EL SEGUNDO, CALIF. — Establishment of Surface-Air Electronics, to manufacture ground and airborne electronic equipment, was announced recently by three brothers long experienced in the aero/space industry.

Heading the new firm as president and general manager is Michael J. Haddad, who has spent more than 20 years in this area in the industry in manufacturing and purchasing. Philip J. Haddad has been named vice president-marketing; and James Haddad, vice president-purchasing and administration.

The company plant at 138 Nevada St. here has begun operations in custom building to specification ground and airborne electronic devices.

## Two Southland Fastener Firms Announce Merger

LOS ANGELES — Fairco Industries, Inc. has been formed here through merger of Fairco, Inc. and PAF Screw Products, Inc., two firms engaged in different phases of an industry supplying precise fastener needs of airframe, spaceframe and automotive manufacturers.

The announcement was made by Gilbert F. Roswell, who will head the new company as president. David Kim, president of PAF, will direct all manufacturing operations as vice president, Fairco Industries.

By combining PAF's facilities for producing screw products with Fairco's engineering, sales, distribution and warehousing functions, Fairco Industries will now fully control all phases of operations. This, Roswell said, will enable the company to set and maintain high standards of quality assurance, a prime current objective of all U.S. space and defense programs.

## Tubing Service Added By Borrmann Steel Co.

OAKLAND, CALIF. — Harold Schutte, sales manager for the George R. Borrmann Steel Co., has announced the addition of seamless steel mechanical tubing to stocks carried in the company's warehouse here at 25 Eighth St.

A large assortment of the most commonly-used diameters and wall thickness, plus squares and rectangles in welded steel tubing, comprise the initial inventory, Schutte said.

He added that Borrmann services include custom sawing, shearing and burning; careful storage and handling to preserve mill quality; inventory indexing and also that the company maintains night crews for fast service on tubing as well as complete steel stocks.

## Expand Lindbergh Air Terminal at San Diego

SAN DIEGO, CALIF. — Construction costing about \$96,000 began last month on an addition to the terminal building at Lindbergh Field, according to Port Director John Bate.

Bate said that the expansion, which is scheduled for completion this fall, was made necessary by increased passenger traffic and by the addition of National and Delta Airlines to Lindbergh Field services.

## Hydraulic Research & Mfg. Forms Electrical Division

SUN VALLEY, CALIF. — Formation of a new division of Hydraulic Research and Mfg. Co., the Hyres Electrical Div., was announced recently by company president C. M. Martenson. Hydraulic Research is a division of Bell Aerospace, one of the major divisions of Textron, Inc.

At the same time, Martenson announced the appointment of Stephen E. Taylor as general manager of the new division.

## Classified Section

Space is sold as advertisers' inches. All advertisements in this section are 1/8 inch short of contracted space to allow for borders and composition. Rates are \$16.00 a column inch. Copy should be sent in by the 20th of preceding month if proofs are required; by the 25th if no proofs are required.

### KAISER STEEL CORP.

Has opening for an Electrical Engineer with college degree and 5 to 10 years experience. This is a supervisory position directing electrical field construction and maintenance work. Steel mill experience preferred. Excellent opportunity for advancement. Send complete resume, including salary requirement to:

Personnel Services Dept.

### KAISER STEEL CORP.

P.O. Box 217  
Fontana, Calif.

All qualified applicants will receive consideration for employment without regard to race, creed, color or national origin.

### PACKAGING MACHINE

Transwrap Model "A". Electronic Eyes. Pouch, 0 to 4 in. W. 0 to 8 in. L. \$2500. Jess M. Richie, 2812 Havenscourt Blvd., Oakland 5, LO 2-6411.

Increase the response to your multiple mailings with . . .



MAILWAYS uses modern tape machines to produce typewritten letters in volume, quickly, economically and with individual attention to give the "personal touch" to your mailings for effective results.

**MAILWAYS INC.**

200 FOLSOM STREET - SAN FRANCISCO 5 - YUKON 2-2524

## P-I-E Expanding at Reno, Las Vegas, Sacramento

OAKLAND, CALIF. — Construction of a new Pacific Intermountain Express terminal in Reno, Nev. and expansion of branch facilities at Las Vegas, Nev. and Sacramento, Calif. were announced last month by A. S. Glikbarg, president of the interstate motor freight common carrier.

These new and enlarged facilities, Glikbarg explained, are necessitated by the increasing volume of freight which P-I-E is handling at the three locations. It is anticipated that work on all three will be completed this month.

The Las Vegas terminal at 211 West Utah St. will be enlarged to 40 x 100 ft., providing eight more doors than the four presently available for loading and unloading. In order that both sides of the existing dock and the 40-ft. addition can be used by line haul equipment, additional land was acquired at the corner of West Wyoming and Fairfield Ave. Fences will be relocated, and the terminal yard will be graded and paved.

The new Reno facility being built by the Holcomb Construction Co. will be situated on a two-acre site on Glendale Rd. in the new Christensen Ranch Industrial Park Subdivision east of Reno. The terminal will have a 20 x 40 ft. office and a 40 x 60 ft. dock with seven doors for loading and unloading.

P-I-E's branch operation at 308 Fourteenth St., Sacramento, will move to the terminal at 800 E St. This had been used previously by the firm's bulk commodities division. The 70 x 120 ft. structure will be modernized and converted for general freight use.

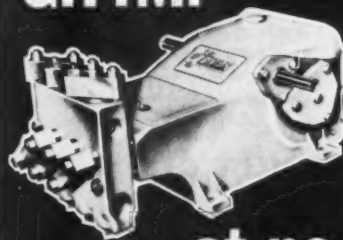
## New Equipment Company Organized in Anchorage

ANCHORAGE—Cliff Huston and Norm Brekke have formed a new firm, Totem Equipment and Supply, Inc., dealer in specialized equipment with facilities at 1108 East 4th Ave., here.

Huston has had long experience in the heavy equipment field and Brekke was former owner-manager of the Al Johnson Equipment Co.

The new company has been appointed Western Alaska distributor of Lubriplate lubricants by Fiske Bros. Refining Co. of Newark, N.J.

# 50% MORE G.P.M.



## ...at no extra cost!

NOW, with a re-designed fluid end, John Bean's new 7000 Series triplex pumps offer you a 50% increase in g.p.m. displacement. There is no extra cost. There is no increase in size or weight. In addition, these compact pumps feature easier-than-ever maintenance. "Slip in" cylinders, valve covers, and valve seats save time and labor. The fluid end may be specified in any of several materials to handle most any liquid, including cast or forged steel and 304 or 316 stainless steel.

- Rated capacity from 1 to 90 g.p.m. at pressures from 100 to 10,000 p.s.i.
- Spring loaded poppet valves.
- Fluid temperatures to 500°F.
- Outside packed, lifetime Sapphire plungers.

## New JOHN BEAN Triplex Pump



### WRITE TODAY FOR FREE CATALOG

Division of Dept. WI-7  
FOOD MACHINERY AND CHEMICAL CORP.  
San Jose, Calif. • Lansing, Mich.

Gentlemen: Send me Catalog L-1484 describing the new 7000 Series Triplex Pump.

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

... for more details, circle No. 119





## WESTERNERS

## AT WORK



**C. C. Crawford**  
CF&I



**C. G. Gould**  
Felker Mfg.



**S. S. Cort**  
Bethlehem Steel



**R. F. Treuer**  
Bunting Brass



**T. I. McClintock**  
Alcoa



**J. D. Reynolds, Jr.**  
Eimco



**Dr. Donald Wickham**  
Ampex



**J. C. Elms**  
Aeronutronic

■ *C. Clay Crawford* has been appointed works manager, Colorado Fuel & Iron Corp.'s Pueblo, Colo. plant.

■ *Charles G. Gould* is newly named general manager, Felker Mfg. Co., Torrance, Calif.

■ *Stewart S. Cort* has been elected vice president, Bethlehem Steel Co., Pacific Coast Div., San Francisco, succeeding *H. Harrison Fuller* who died recently.

■ *Robert F. Treuer*, Los Angeles, has been named general manager, Western operations, Bunting Brass & Bronze Co.

■ *T. I. McClintock* has been named works chief metallurgist, Aluminum Co. of America's Vernon, Calif. operations.

■ *John D. Reynolds, Jr.* is newly named general purchasing agent, Eimco Corp., Salt Lake City.

■ *Dr. Donald Wickham* has been appointed manager, Material Research and Development, Ampex Computer Products Co., Components Div., Culver City, Calif.

■ *James C. Elms* has been named general operations manager of newly consolidated Electronics Operations, Aeronutronic Div., Ford Motor Co., Newport Beach, Calif.

■ *Walter B. Siegel* has been promoted

to personnel director and *Ralph E. Shulenberg* industrial relations manager, Soule Steel Co., San Francisco.

■ *W. J. Flanagan* is newly named material manager, Glendale, Calif. Branch Librascope Div., General Precision, Inc.

■ *Rollin M. Russell* has been elected executive vice president and a director of Acoustica Associates, Inc., Los Angeles.

■ *Spencer L. Glaspell* has been appointed president, Chemonics Corp., Pasadena, Calif.

■ *David W. Goldsmith* has joined U.S. Borax & Chemical Corp., Boron, Calif., as senior process engineer.

■ *Frank M. Cashin* has been elected president, Refractories Div., Kaiser Aluminum & Chemical Corp., Oakland, Calif.

■ *Dr. Paul Kruger* has joined Hazleton-Nuclear Science Corp., Palo Alto, Calif., as manager, Nuclear Projects Dept.

■ *Frank M. Chapman* has been named general manager, Fluorocarbon Div., Plastic and Rubber Products Co., Los Angeles.

■ *Vernon Auten* has been named supervisor, Injection Molding Operations, Automatic Plastic Molding Co., Berkeley, Calif.

■ *Henry J. Kaiser Jr.*, vice president and director of Kaiser Industries Corp., Oakland, Calif., died recently.

■ *Emmett E. Stoddard*, a 42-year lumber veteran, retired May 31 as director field services, West Coast Lumbermen's Association, Portland.

■ *Joe B. Smith* has joined Crate-Rite, Inc., Oakland, Calif. as chief engineer.

■ *Robert E. Johnson* has been appointed manager, Weyerhaeuser Co.'s Arcata, Calif. branch.

■ *Leonard F. Crowley*, steel executive associated with Earle M. Jorgensen Co., died at Long Beach, Calif. recently.

■ *R. T. Bartlett* has been named manager, Oakland, Calif. scale plant of Fairbanks, Morse & Co.

■ *John W. Rhyne, Jr.* has been appointed chief electrochemist, Telecomputing Corp.'s Power Sources Div., Denver.

■ *John G. Sinclair, Jr.* has joined Microwave Laboratories of Quantatron, Inc., Santa Monica, Calif., as senior engineer.

■ *J. T. Cataldo*, vice president International Rectifier Corp., has also been named executive vice president and general manager, Dallons Laboratories, Inc., Los Angeles.



- **H. Price**, head of purchasing dept., Bethlehem Steel at Seattle, retired recently.
- **James R. Pynes** has taken over as chief lumber inspector for the Western Pine Association, Portland, succeeding retiring **Vern Johnson**.
- **William H. Paulus** retired May 31 after 30 years in food industry with Dole Corp. and Paulus Bros. Packing Co., Salem, Ore.
- **Frank Hennessey** has joined Dalmo Victor Co., Belmont, Calif., as senior engineer.
- **Dr. Sheldon L. Matlow** has been named director of research, Intellux, Inc., Santa Barbara, Calif.
- **Earle Schirmer** has been named to the new post of chief engineer, Zero Mfg. Co., Burbank, Calif.
- **Thomas M. Brown** has retired as treasurer, Hawaiian Sugar Planters' Assn. after 40 years with the sugar industry in the Islands.
- **Clyde E. Bohner** has joined Harvill Corp., Los Angeles, as plant manager for metal castings operations.
- **Dr. William E. Bradley**, director of research, Union Oil Co. of Calif., Los Angeles, has been elected a vice president.
- **Sanford Kaplan** has been named vice president and general manager, Shore-Calnevar, Inc., Los Angeles.
- **Bruno Grossi** has been named director of research, Gerber Co., Oakland, Calif.
- **John S. Luce**, atomic scientist, has joined the staff of Aerojet-General Nucleonics, San Ramon, Calif.
- **Francis T. Fox**, general manager, Los Angeles Dept. of Airports, has been named vice president, Western Region, National Aeronautic Association.
- **B. E. Rowland** has been appointed general traffic manager, Delta Lines, Inc., Emeryville, Calif.
- **Robert L. Friedenthal**, vice president Easterday Supply Co., San Francisco, has been elected to board of directors, National Sanitary Supply Association.
- **Frederick Parker** and **Norman L. Frank**, industrial engineers, have joined Lenkurk Electric Co., Inc., San Carlos, Calif.
- **John E. Sullivan**, Burlingame, Calif., has been elected president, Northern California chapter, American Material Handling Society.
- **John P. Sharp** has been named Western regional manager, Denison Engineering Div., American Brake Shoe Co., with headquarters at Hawthorne, Calif.
- **Ian F. Thomson** has been appointed manager, components assembly, Non-Linear Systems, Inc., Del Mar, Calif.
- **Dennis M. Beckett** has been named plant superintendent, Fabriform Metal Brazing, Inc., Los Angeles.
- **Andrew F. Haiduck** has been appointed vice president and general manager, Lear, Inc.'s Astronics Div., Santa Monica, Calif.
- **Dr. Robert G. Larsen** has been named oil research and development consultant, Shell Development Co.'s Emeryville, Calif., Research Center.
- **John W. Carlson, Jr.**, has been transferred from Alcoa's Vancouver plant to Wenatchee, Wash., smelter as supervisory electrical engineer.
- **Retired Admiral Leslie E. Gehres**, USN, has resigned as manager, security and civic affairs, Ryan Aeronautical Co., San Diego, to become general manager, National Marine Terminal.
- **August C. Esenwein** has resigned as executive vice president of Convair, San Diego.
- **Primo L. Pinotti** has joined the Oronite Div., California Chemical Co., San Francisco, as product specialist.
- **L. J. Forrest**, head of Rayonier, Inc.'s Northwest Timber Div., has been elected a vice president of Rayonier.
- **L. E. Wick** has been named vice president and general manager, Colby Steel & Mfg., Inc., Seattle.
- **Stanley E. Stretton**, retired Standard Oil executive at Bellevue, Wash., has been elected president, Pacific Northwest Trade Association.
- **Thomas J. Clark** has become manager of the prime-contract administration at Hanford Works, Richland, Wash., for General Electric.
- **Berne N. Fisher** is newly appointed president, Gonset Div., Young Spring & Wire Corp., Burbank, Calif.
- **E. Warren Feddersen** has been named director of manufacturing development, Convair Div., General Dynamics Corp., San Diego.
- **Dr. John M. Brabant** has joined the operations staff of Bissett-Berman Corp., Santa Monica, Calif.
- **Henry C. Strecker** has been appointed chemist, quality control, Technical Dept., Crockett Refinery, California & Hawaiian Sugar Refining Corp.
- **H. P. Schoerner** is newly named manufacturing manager, Day & Night Mfg. Co., La Puente, Calif.
- **Thomas E. Piper** has joined Hughes Aircraft Co.'s ground systems group, Culver City, Calif., as manager, materials and processes dept.
- **Robert E. Parrett** has been appointed corporate vice president and general manager, Pacific Automation Products, Inc., Glendale, Calif.
- **Richard D. Blayney** is newly named San Diego district manager, Cain & Co.
- **Robert R. Clark**, Los Angeles, and **Edward J. Hibbert**, San Francisco, have been elected chairman and vice-chairman, California Apprenticeship Council.
- **Michael J. Jeswick**, Altadena, Calif., has been named Western Area Program Control Specialist for General Electric.
- **E. L. Stone** has been appointed Chief of the Small Business Office, Los Angeles Army Ordnance District.
- **Theodore W. Cooper** has joined staff of Micro Systems, Inc., San Gabriel, Calif., as manager, Operations Div.
- **George T. Scharffenberger** has been promoted to executive vice president, Litton Systems, Inc., Beverly Hills.
- **Dr. Cameron Knox** has been appointed corporate director of research, Acoustica Associates, Inc., Los Angeles.
- **J. S. Webb, Jr.**, has been appointed assistant to president, New Enterprises, Thompson Ramo Wooldridge, Inc., Los Angeles.
- **Harold D. Beck, Jr.**, has been named manager, General Electric distribution transformer plant, Oakland, Calif.

# ADVERTISERS INDEX

<b>A</b>		Food Machinery Corporation, John Bean Division .....123		Pacific Pumping Company ..... -	
Acme Chain Corporation ..... -		Foucar, Ray & Simon ..... 94		Pacific Telephone & Telegraph Co., The ..... 56	
Air Reduction Pacific Company		<b>G</b>		Pacific Tube Company ..... 67	
A Division of Air Reduction Co., Inc. ....12		General Appraisal Company..... -		Pacific Valves, Inc. .... 98	
Alan Wood Steel Company ..... 18		General Fireproofing Company, The ..... 88		Perfecting Service Company ..... 94	
The Louis Allis Company ..... -		General Metalcraft, Inc. .... 75		Petley Inc. .... 118	
Alloy Steel & Metals Company ..... 120		General Metals Corporation		Powell, William, Company, The ..... 8	
American Chain Division		Foundry & Forge Division ..... 114		<b>R</b>	
American Chain & Cable Company, Inc. .... -		Glo-Quartz Electric Heater Co. .... 1095		Republic Supply Co. .... -	
American Floor Machine Co., Division of		Graver Tank & Manufacturing Co.,		Revere Copper & Brass, Inc. .... -	
American-Lincoln Corporation ..... 105		Division of Union Tank Car Co. .... 91		Richfield Oil Corporation ..... 71	
American-Lincoln Corporation		Goodall Rubber Company ..... 37		Riverside Steel Construction ..... 73	
Divisions-Lincoln Floor Machinery Co. &		<b>H</b>		Robbins & Myers, Inc. .... 7	
Wilshire Power Sweeper Co. .... 103		Harnischfeger Corporation ..... 47		Rods, Inc. .... 75	
Ampco Metal, Inc. .... 19		Haslett Field Warehousing ..... 119		Ross, J. O., Engineering Co. .... 25	
Anaconda American Brass Company ..... 10		Hassall, John, Inc. .... 118		Round, David, & Son, Inc. .... -	
Anaconda Wire & Cable Company ..... 35		Haws Drinking Faucet Co. .... 95		Rust-Oleum Corporation ..... 65	
Anchor Post Products, Inc. (Fence Div.) ..... 81		Hough, Frank G., Co., The ..... 115		<b>S</b>	
Armco Drainage & Metal Products, Inc. .... -		Hyster Company ..... 3		Sarco Company, Inc. .... 6	
Arrow Freight Forwarders ..... 120		<b>J</b>		Searle Leather & Packing Co. .... -	
Automatic Transportation Company		Jeffrey Manufacturing Co., The ..... 43		Security First National Bank ..... -	
Division of The Yale & Towne		Johnston, A. P., Co., Inc. .... 126		Smallcomb Electric Co. .... 1085	
Manufacturing Co. .... -		Jorgensen, Earle M., Steel Co. .... Cover 2		Smoot-Holman Company ..... 28	
<b>B</b>		<b>K</b>		Snap-On Tools Corporation ..... 99	
Babbitt Steam Specialty Co. .... 95		Kellogg-American Div. (Scaife Co.) ..... 74		Soule Steel Company ..... Cover 4	
Bay State Abrasive Products Co. .... -		Kilsby Tubesupply,		Southern California & Southern Counties	
Bemis Bros. Bag Company ..... -		Div. of Republic Supply Co. .... -		Gas Companies ..... -	
Borrmann, Geo. R., Steel Co. .... 33		<b>L</b>		Standard Oil Company of California ..... 15	
Butler Manufacturing Company ..... 22		Lamson Corporation ..... 45		Standard Pressed Steel Company,	
<b>C</b>		Lifschultz Fast Freight ..... 95		Columbia-Hallowell Division ..... 73	
Calhear Instruments Co. .... -		Lincoln Floor Machinery Co. & Wilshire Power		Industrial Fastener Division. .... -	
Campbell Chain Company ..... 48		Sweeper Co. Divisions of American-Lincoln		<b>T</b>	
Carborundum Company, The ..... 26 & 27		Corp. .... 103		Thermovax ..... 45	
Chainveyor Corporation		Louden Machinery Co., The ..... 112		Ton-Tex Corporation, Central Division ..... -	
Chisholm-Moore Hoist Division		Lubriplate Division,		Towmotor Corporation ..... 23	
Columbus McKinnon Corporation ..... 101		Fiske Brothers Refining Co. .... 82		Tri-State Supply Corporation ..... -	
Clark Controller Company ..... 96		Lumidor Mfg. Co. .... -		<b>U</b>	
Cleveland Vibrator Co., The ..... -		Lyon Metal Products, Inc. .... -		Union Pacific Railroad ..... 1075	
The Cleveland Crane & Engineering Co. .... -		<b>M</b>		United States Steel Corporation,	
Cleveland Vibrator Co., The ..... -		Maas, A. R., Chemical Company ..... 53		Columbia Geneva Steel Division ..... 75	
Coast Industrial Supply Co., Inc. .... Cover 3		Mahon, R. C., Company, The ..... 78		Universal Metal Hose Company ..... -	
Coldwell, Banker & Company ..... 83		Master Fan Corp. .... 114		<b>V</b>	
Colorado Fuel & Iron Corporation, The ..... 3		Masterite Industries ..... 111		Victor Equipment Company ..... 57	
Colson Equipment & Supply Co. .... 37		Mathews Conveyor Company ..... 46		<b>W</b>	
Columbia Geneva Steel Division,		Metalab Equipment Co. .... 113		Wagner Electric Corporation ..... 24	
United States Steel Corporation ..... 75		Milford River Co., The ..... 93		Western Plant Maintenance Show ..... 16	
Columbus McKinnon Corporation ..... 100		Miller Electric Mfg. Co., Inc. .... 89		White Motor Company, The ..... 121	
Compressor Service Company ..... -		Milwaukee Electric Tool Corporation ..... 1085		Wix-Merit Glove Company ..... 103	
Curoco ..... 75		Monarch Rubber Company, The ..... 87		Wilshire Power Sweeper Co. & Lincoln Floor	
<b>D</b>		Montgomery Brothers, Inc. .... 82		Machinery Co., Divisions of American-Lincoln	
Darnell Corporation, Ltd. .... 112		Morris, Stanley E., Co. .... 80		Corporation ..... 103	
Davy Compressor Co. .... 77		Morse Manufacturing Co., Inc. .... 80		<b>Y</b>	
Dempster Brothers, Inc. .... 58		Motorola Communications & Electronics, Inc. .... 80		Yale & Towne Manufacturing Company,	
Diamond Chain Company, Inc. .... 55		<b>N</b>		Materials Handling Div. (Lift Trucks) .... 20 & 21	
Dodge Manufacturing Corporation		National Supply Company, The ..... 13		<b>Z</b>	
Ducommun Metals & Supply Co. .... -		<b>P</b>		Ziegler Steel Service Corporation ..... -	
<b>E</b>		Pacific Gas & Electric Company ..... -			
Easterday Supply Company ..... 51		Pacific Intermountain Express ..... -			
Electrolift, Inc. .... -		<b>O</b>			
Esco Corporation ..... 39 & 40					
<b>F</b>					
Falk Corporation, The ..... 17					
Fernholtz Machinery Company ..... -					
Fiske Brothers Refining Co. .... 82					
Lubriplate Division					
Flintkote Company, The					
Monoform System ..... 117					

## Johnston Stainless Welding Rods

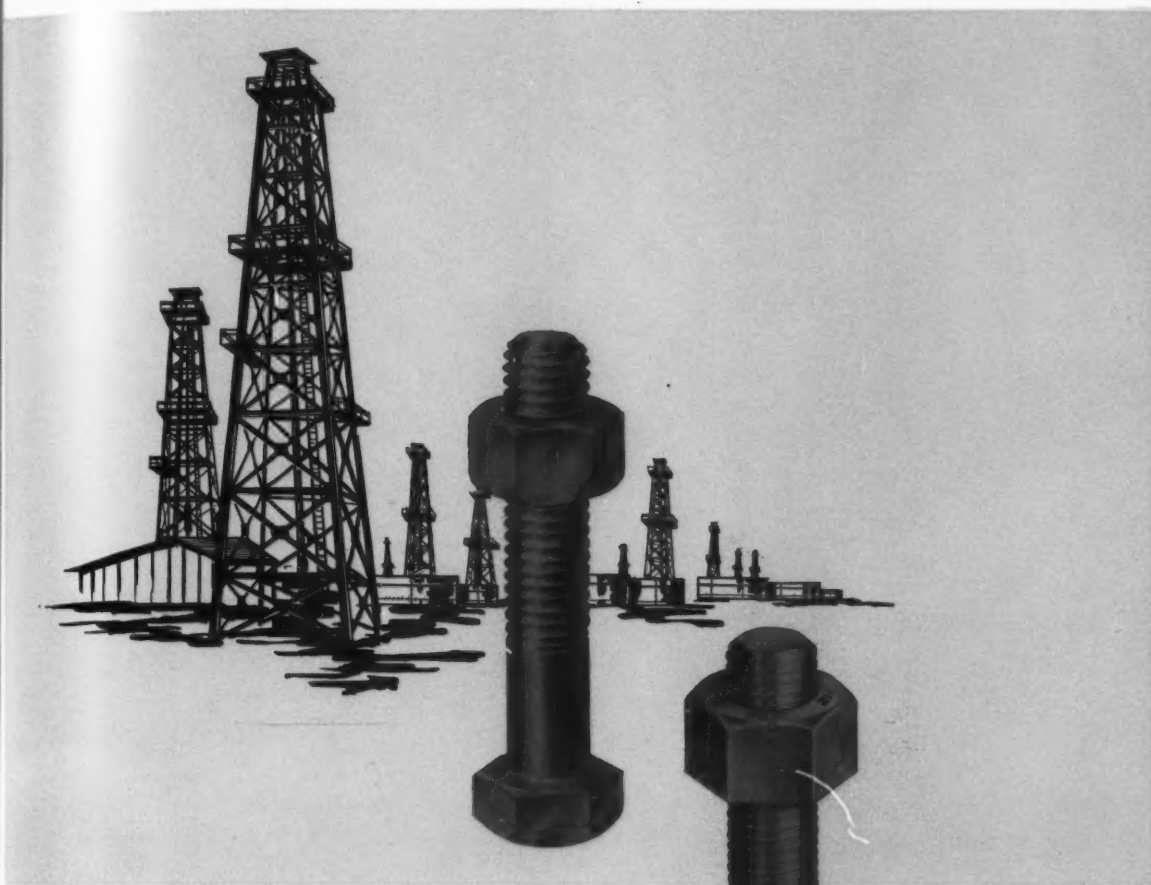
Practical, Down-to-Earth Welding Rod—  
Alloys as they are supposed to be

Corrosion Resistant—  
Clean metal

Strong—  
Low in cracking

A. P. JOHNSTON CO. INC.  
1845 E. 57th St., Los Angeles 58

... for more details, circle No. 121 on Reader Service Postcard

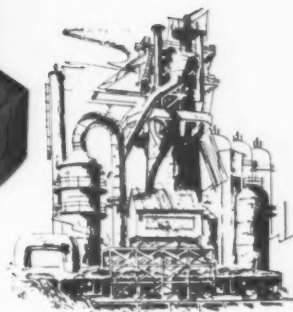


## PRODUCTS OF STRENGTH THAT CONTROL PRESSURES

In such fields as Petroleum and Petro-Chemical production, where great temperatures and pressures develop, CISCO products are almost universally specified.

Why?

Well, for many years CISCO has been earning and maintaining a reputation for excellence, the hard way—under hard use!



**COAST**

**INDUSTRIAL SUPPLY CO., INC.**

MANUFACTURERS OF GUIDED MISSILE • INDUSTRIAL • PETRO-CHEMICAL & OIL REFINING PRODUCTS

Alloy studs and bolts of  
ASTM — A 193 — B 7 — B 14  
— B 16 with ASTM 194 code  
nuts to your requirements.




Request free  
1961 CISCO Catalog  
and Price List.

**FACTORY:** 4494 E. 49th St. • Los Angeles 58, Calif.  
Telephone LUdlow 3-6666

• **BRANCH WAREHOUSE:** 1819-5th St. • Berkeley, California  
Telephone THornwall 1-1330

... for more details, circle No. 122 on Reader Service Postcard



*Soulé Breaks the Design and Dimension Barriers*

## IN STEEL SUPPORTING STRUCTURES **Forget Everything You Know About**



**Steel Buildings.** Soulé can precisely manufacture steel supporting structures to fit your architectural design and dimensions, without sacrificing production-line economies. For retail, service and other commercial projects, Soulé Steel Structures help reduce your board and engineering time, speed up completion. Completely detailed for fast, effective integration of wood, masonry, window walls and other building materials and systems.

INVESTIGATE THE NEW IDEA IN STEEL STRUCTURES—CALL SOULÉ

member metal building manufacturers association

**Soulé** **50**  
SINCE 1911  
GOLDEN ANNIVERSARY

**SOULÉ STEEL COMPANY** San Francisco • Los Angeles • San Diego • Phoenix • Portland • Seattle • Salt Lake City

... for more details, circle No. 123 on Reader Service Postcard



out  
ure  
ral  
uc-  
ner  
elp  
up  
ve  
ner

É

out

y

X